JPRS-UBB-86-017

19 AUGUST 1986

# USSR Report

## LIFE SCIENCES

## BIOMEDICAL AND BEHAVIORAL SCIENCES

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# USSR REPORT

## LIFE SCIENCES

## BIOMEDICAL AND BEHAVIORAL SCIENCES

## CONTENTS

MEDICINE

CONFERENCES



MISCELLANEOUS

UDC 59.082.114:595.7

## AUTOMATIC PHEROMONE TRAP FOR MONITORING INSECTS

Moscow ZOOLOGICHESKIY ZHURNAL in Russian Vol 64, No 9, Sep 85
(manuscript received 27 Nov 84) pp 1431-1434

[Article by P.G. Chmyr, All-Russian Scientific Research Institute of Plant Protection, Ramon, Voronezh Oblast]

[Abstract] A simple, automatic trap was designed to monitor insects for which sex pheromones were synthesized without the necessity of having human attendance. The principle is simple: a drum with adjustable slit permits the insect to reach the trap containing the sex attractant. Once entered the insect adheres to the plate covered with adhesive which rotates on an axle at a given time-related rate. Once a month the plate is removed and replaced with a fresh one. The insects trapped on the adhesive are counted to show day variations. The distance between multiple traps should be 100-150 m to avoid duplication of readings. Seasonal and daily activity of insects in the capture area can thus be monitored. Figures 2; references 3: 1 Russian, 2 Western.

7813/9835
CSO: 1840/1153

UDC 581.198

## EFFECT OF BOIL SMUT FUNGUS INFECTION ON CYTOKININ ACTIVITY IN CORN SEEDLINGS

Moscow FIZIOLOGIYA RASTENIY in Russian Vol 33, No 1, Jan-Feb 86
(manuscript received 10 Apr 85) pp 127-133

[Article by I.F. Khozina, I.V. Sokolovskaya, L.V. Kuznetsov and A.N. Polin, Faculty of Biology, Moscow State University]

[Abstract] The aim of this study was to perform comparative evaluation of cytokinin activity in healthy corn seedlings and in those infected with haploid and diploid strains of boil smut fungus. Cytokinin activity was determined in the above ground plant (the site of parasite location) and in

the roots, where cytokinins are synthesized, using the betacyanine test with Amaranthus caudatus L. It was shown that the fungus Ustilago reae ung. affected the activity of cytokinins in all phases and in both the above-ground and the underground parts of the plants. The greatest difference between infection variables was noted comparing cytokinin activity of compounds with an $R_f$ of 0.6-0.9 on chromatographic plates, the location site of zeatin and zeatin-riboside. When infected with a mixture of haploid and diploid strains, cytokinin activity increased; upon infection with haploid strain alone, their level decreased. A great increase in cytokinin activity was observed during active vegetative growth of diploid or dikaryon parasitic mycelia in host tissue. Figures 4; references 19: 7 Russian, 12 Western.

7813/9835
CSO: 1840/2080

UDC 581.143:036.1

GROWTH RESPONSE OF WHEAT SEEDLINGS TO HIGH TEMPERATURE

Moscow FIZIOLOGIYA RASTENIY in Russian Vol 33, No 1, Jan-Feb 86 (manuscript received 4 Apr 85) pp 134-141

[Article by N.N. Musiyenko, T.M. Daskalyuk and A.V. Kaplya, Kiev State University imeni T.G. Shevchenko]

[Abstract] Growth processes are good indicators of the effect of high temperatures on actively vegetating plants. This phenomenon was studied in detail on three-day-old wheat seedlings (Odesskaya 51) exposed to different temperatures for variable duration. The relationship between experimental seedlings and controls (RI) showed that initial exposure depressed the growth process, followed by its restoration to the level of controls. Minimum of the RI curves was noted in one day after exposure to high temperatures regardless of the duration or level of heat effect. Three zones were identified on the basis of growth response to high temperatures: zones of reversible, partially reversible and irreversible damage. Evaluation of parameters leading to irreversible damage is necessary for comparison of heat stability of various genotypes. Figures 5; references 8: 6 Russian (1 by Western author), 2 Western.

7813/9835
CSO: 1840/2080

UDC 581.717

EFFECT OF GIBBERELLIC ACID ON ULTRASTRUCTURE OF CORN LEAVES AT EARLY STAGE OF ONTOGENESIS

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 7, Jul 85 (manuscript received 23 May 84) pp 587-590

[Article by N.P. Beglaryan, A.A. Pivazyan and L.Kh. Abramyan, Department of Genetics and Cytology, Yerevan State University]

[Abstract] While plants have interacting physiological and genetic processes that may be limited in their fulfillment by external factors, they have great potential for intensifying metabolic processes. The present article reports on study of growth promoters, particularly gibberellic acid (GA), applied to seeds before planting to improve yield and hardiness. The GA activated the seed germ, caused polyploidization and also activated the photosynthetic process. The authors studied changes in the ultrastructure of corn leaves of the Krasnodarsky 5 strain, raised from seeds treated with a 0.02% solution of GA for 12 hours; the control plants came from seeds soaked in distilled water for the same period. The leaves were treated with a 6% solution of glutaraldehyde followed by neutralization with a 2% solution of $OsO_4$. Results showed that GA activated many cell components, such as chloroplasts, mitochondria and ribosomes, which are responsible for photosynthesis and protein formation in plant cells. Thus, gibberellic acid can be regarded as an effective growth promoter in corn. Figures 4; references 14 (Russian).

12131/9835
CSO: 1840/2087

UDC 582.288.43:581.15

COMPARATIVE STUDY OF POPULATIONS OF ALTERNARIA MACROSPORA ZIMM., PATHOGEN OF COTTON BLIGHT FUNGUS. PART 1. CULTURO-MORPHOLOGICAL PROPERTIES

Moscow VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 16: BIOLOGIYA in Russian No 1, Jan-Mar 86 (manuscript received 19 Dec 84) pp 40-45

[Article by Farag Akhmed Said, L.M. Levkina and M.V. Gorlenko]

[Abstract] The article reports on study of A. macrospora Zimm. as the cause of cotton blight in most important cotton-producing countries. The authors compared morphological, physiological and biochemical features of the pathogen from two regions of the Tajik SSR, where the blight is especially damaging: the Vakhskiy valley and the Gissarskiy valley. Spores were collected and raised on various culture media: carrot-potato, carrot-glucose, glucose-asparagine, glucose-leucine and glucose-peptone agars were used. Micro-morphology and culturo-morphological types are discussed, as well as the rate of growth of various strains. Results indicate that there are

significant differences between the strains depending on the valley of their origin. The 7 types found differ in various features, but the great heterogeneity of the population, especially in the Gissarskiy valley, indicates low levels of specialization. Figures 1; references 9: 5 Russian, 4 Western.

12131/9835
CSO: 1840/2062

UDC 575.24:58.039.1

MODIFYING EFFECTS OF 5-FLUORO-2-DEOXYURIDINE (FDU) ON FREQUENCY OF VISIBLE WHEAT MUTATIONS FOLLOWING X-RAY IRRADIATION

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 19, No 5, Sep-Oct 85 (manuscript received 20 Aug 84) pp 355-359

[Article by R.A. Azatyan and V.A. Avakyan, All-Union Scientific Research Institute of Nature Protection and Nature Preserves, USSR Ministry of Agriculture, Yerevan]

[Abstract] Studies were conducted on the modifying effects of FDU on x-ray-induced mutations in Artashati-42 soft winter wheat, using an experimental approach in which dry seeds were irradiated with either a 100 or 150 Gy dose, followed by exposure to FDU (5 μg/ml) for various lengths of time prior to planting. Treatment with FDU alone was rather innocuous, raising the frequency of morphological mutations to 0.035% from a baseline level of 0.0-0.024%. However, the combination of both factors showed a synergistic effect. Irradiation with the 100 Gy dose raised the frequency of morphological mutations in $M_3$ to 0.61%, and to 1.03% in the 100 Gy + FDU (10 h) combination. The corresponding values for experiments with the 150 Gy dose were 1.47 and 2.07%. The effects of FDU were not limited to an increase in the frequency of morphological mutations, but also apparent in the wider spectrum of induced mutations. The effects of the chemical agent were ascribed to inhibition of DNA synthesis, leading to expression of additional potential changes induced by x-irradiation. Figures 1; references 14: 12 Russian, 2 Western.

12172/9835
CSO: 1840/2159

UDC 575.167:633.111:574.24

# GENETIC MECHANISMS OF ECOLOGIC PLASTICITY IN SOFT WINTER WHEAT: QUANTITATIVE TRAIT ECOLOGIC MODEL AND CRITERIA FOR ASSESSMENT OF GENOTYPE RESPONSE TO ENVIRONMENTAL FACTORS

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 19, No 5, Sep-Oct 85
(manuscript received 24 Jul 84) pp 359-364

[Article by V.F. Gerasimenko, All-Union Breeding and Genetics Center, Odessa]

[Abstract] The statistical rationale is provided for deriving quantitative models for the assessment of ecological plasticity of soft winter wheat, in order to provide useful algorithms for the evaluation of genotype responsiveness to the environment. The response of the genotype to environmental changes finds expression in altered phenotype. Since dispersion and root-mean-square deviation are the statistical indicators of variability, the latter parameters can serve as indicators of genotype responsiveness. Comparative analysis of genotypic responsiveness can be derived from the ratio of root-mean-square deviation values, the quotient being independent of correlation coefficients between the genotypes under study. Figures 1; references 13: 11 Russian, 2 Western.

12172/9835
CSO: 1840/2159

BIOCHEMISTRY

UDC 577.153.3

# EFFECT OF ACETYLCHOLINE AND CAFFEINE ON POTASSIUM ION TRANSPORT BY FRAGMENTS OF SARCOPLASMATIC RETICULUM

Alma-Ata IZVESTIYA AKADEMII NAUK KAZAKHSKOY SSR: SERIYA BIOLOGICHESKAYA in Russian No 6, Nov-Dec 85 pp 71-77

[Article by O.V. Yesyrev, Zh.A. Nusupova, V.I. Vashchenko, Zh.K. Uspanova, and M.K. Kurzakhmetova, Institute of Physiology, KaSSR Academy of Sciences, Alma-Ata]

[Abstract] Electromechanical linking is used widely for muscular tension and relaxation in which Ca ions are transported successfully by sarcoplasmatic reticulum (SR) membranes. The present article reports on the role of acetylcholine and choline in regulating such processes, as well as the effects of caffeine on the transport of $Ca^{2+}$ ions by SR fragments. SR fragments from rabbit and frog skeletal muscles were separated, treated with sodium azide, and then tested for transport of $Ca^{2+}$ ions. Then the effects of acetylcholine on $Ca^{2+}$ transport in skeletal muscles and the myocardium were determined. A method was used that avoided effects of oxalate in the medium. A variant showed that the activity of Ca-ATPase in SR preparations treated with oleic acid increased after heating at 20-35 °C, but not more than untreated control samples, and the activity increase soon was followed by a sharp decrease. The Ca-ATP-ase was regarded as essential for acetylcholine to work on the SR membrane. Caffeine was found to affect only the Ca-transporting system of heavy SR membrane and not that of $Ca^{2+}$ or light SR of the sartorius muscle. Figures 5; references 8 (Russian).

12131/9835
CSO: 1840/2084

UDC: 573.3

## PROOF OF FORMATION OF TWO TYPES OF LIQUID CRYSTAL MICROPHASES OF DNA MOLECULES OF LOW MOLECULAR WEIGHT IN WATER-SALT POLYETHYLENE GLYCOL SOLUTIONS

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 4, Feb 86
(manuscript received 16 Dec 85) pp 997-1000

[Article by Yu.M. Yevdokimov, S.G. Skuridin and N.S. Badayev, Institute of Molecular Biology, USSR Academy of Sciences, Moscow]

[Abstract] Textures of thin layers of microphases formed of DNA molecules in water-salt solutions with varying polyethylene glycol content were obtained for the first time. The textures not only prove the liquid crystalline nature of the DNA molecule formations, but also allow identification of two types of organization of liquid DNA crystals formed under various conditions: cholesterol organization of DNA molecules and nematic organization of DNA molecules. The optically active double-strand DNA molecules condensing in polyethylene glycol-containing water-salt solutions can thus form either cholesterol or nematic liquid crystals depending on the properties of the solvent. Figures 1; references 14: 7 Russian, 7 Western.

6508/9835
CSO: 1840/360

UDC 577.343

## PHOTOCHEMILUMINESCENCE OF PROTEIN SOLUTIONS DURING PROLONGED UV IRRADIATION

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian No 1, Jan 85
(manuscript received 24 Feb 84) pp 65-70

[Article by M.L. Gevorkyan and A.Ye. Zakaryan, Chair of Biophysics, Yerevan State University]

[Abstract] Studies were conducted on the kinetics of photochemiluminescence of protein solutions subjected to prolonged--2-3 h--UV illumination to provide

further confirmation of putative mechanisms responsible for this effect. The studies were conducted on arginase, isolated from bovine liver, and human serum albumin. Both proteins showed an increase in photochemiluminescence over the time course of irradiation, with a short-term initial decrease in the intensity of photochemiluminescence eventually replaced by an increase in intensity. In both cases the preliminary phase was abolished by thermal (70-80°C) denaturation of the protein solutions. In addition, in the case of arginase, loss of enzymatic activity corresponded to the secondary increase in intensity, a phenomenon prevented by the presence of arginase-stabilizing $Mn^{++}$ ions. These observations were interpreted as providing additional confirmation that the intensity increase is due to changes in the native conformation of proteins induced by UV irradiation. Active products formed from tryptophanyl moieties then react with previously unaccessible sites, resulting in the formation of free radicals that give rise to photochemiluminescence. Figures 4; references 8: 6 Russian, 2 Western.

12172/9835
CSO: 1840/2012

BIOTECHNOLOGY

## DEVELOPMENT AND PRODUCTION OF RESTRICTASE ENZYMES

Moscow NTR: PROBLEMY I RESHENIYA in Russian No 7, 8-21 Apr 86 p 6

[Excerpt] The Research-and-Production Association (NPO) "Ferment" in Vilnius has begun producing another preparation belonging to the class of restrictase enzymes, which are used in genetic engineering for studying the structure of genes, diagnosing hereditary diseases, and designing microorganisms that will be producers of biologically active substances. For research on restrictase enzymes and the organization of their production, associates of the NPO have been awarded prizes by the USSR Council of Ministers and the Leninist Young Communist League.

NPO "Ferment" is pursuing an extensive search for microorganisms that are producers of restrictases. More than 100 of these producers have been discovered in the last few years. Methods of cultivating them are being developed, and the specificity of enzymes that have been obtained for the first time is being determined. In particular, nine restrictases which are new in terms of their specificity have been isolated. They greatly expand the bounds of application of genetic engineering. Processes have been developed or improved, and new sources have been found for obtaining a number of known enzymes which are more advantageous than previous ones.

It should be pointed out that only a few years ago, preparations like these were not produced by Soviet industry. The rapid rate at which scientific developments were introduced into production became possible thanks to the direct contacts of the research institute with an experimental shop within the organizational structure of the NPO.

Eight preparations which have been developed have become competitive on the world market, and they are available to foreign firms under licensing agreements. There are good prospects for extending this list.

FTD/SNAP
CSO: 1840/1203

BLOC MEMBERS SIGN AGREEMENTS ON MATERIALS AND BIOTECHNOLOGIES

Moscow NTR: PROBLEMY I RESHENIYA in Russian No 7, 8-21 Apr 86 p 3

[Excerpt] The 34th meeting of the Committee on Scientific-Technical Cooperation of the Council for Mutual Economic Assistance (CEMA) examined specific measures for carrying out the Large-scale Program of Scientific-Technical Progress of CEMA Member Countries to the Year 2000. At the conclusion of the committee's work, a press conference was held with its director, G.I. Marchuk, deputy chairman of the USSR Council of Ministers and chairman of the USSR State Committee for Science and Technology:

"The result of our deliberations was the signing of general agreements on multilateral cooperation in the fourth and fifth directions of our program--in the field of new materials and the technology of their production and processing, and in the field of biotechnology.

"Our committee is directing its efforts to expedite the transferring of the priority directions to the realm of specific actions: business agreements and contracts that encompass the whole set of stages of the process 'research-engineering-production-marketing.' A substantial portion of projects of the defined programs of cooperation already are undergoing detailed elaboration. This activity is aimed at introducing new products and processes into production in the current 5-year plan period. However, the interests of the matter demand that the work be accelerated. On this count, the USSR Council of Ministers has issued instructions to chief organizations in the priority directions, the functions of which have been assigned to leading scientific research, design and planning institutes of our country, by agreement of the participating sides.

"I would like to note that the chief organizations have been granted broad authority in expanding cooperation on the basis of implementing direct ties with interested organizations of CEMA member countries, including the signing of business agreements and contracts.

"The first practical steps have been taken. An international research-and-production association, 'Interrobot', is being created. A joing laboratory for work on the problem 'Corrosion and Tropical Conditions' has been functioning for several years in Cuba. Two Soviet-Bulgarian associations in the field of machine tool building have begun carrying out programs of cooperation. Next will come the creation of organizations of this type in other priority directions."

FTD/SNAP
CSO: 1840/1203

MICROBIOLOGICAL INDUSTRY IN SUPPORT OF AGRICULTURE

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian 3 Mar 86 pp 42-46

[Article by V. Makarenko, candidate of economical sciences, and M. Beylin]

[Abstract] One of the most important roles of the microbiological industry in realization of the Soviet Food Program is to make a contribution to the liquidation of protein shortage in agricultural feeds. Extensive de elopment of the microbiological industry in Ukraine in the course of the 11th Five-Year Plan has brought to 54 the number of operational plants which produce various supplements for feed, as well as make better utilization of various agricultural products in the production of single-cell proteins, the production of which reached 170,700 tons in 1985. The microbiological industry has also enriched the agricultural sector through soil improvement by a better understanding of soil microbiology and has produced bacterial fertilizers that enhance nitrogen fixation. The Party and the government of Soviet Ukraine have also taken care to provide the cadres of the microbiological industry with a full range of services and amenities to insure job satisfaction, and thereby further strengthen this important branch of industry. References 1 (Russian).

12172/9835
CSO: 1840/1195

ENVIRONMENT

UDC 557.4:581.526.53

# PLANT PRODUCTIVITY MODEL FOR MONITORING DESERT ECOSYSTEMS

Leningrad BOTANICHESKIY ZHURNAL in Russian Vol 71, No 1, Jan 86
(manuscript received 20 Sep 84) pp 23-33

[Article by Yu.B. Kirsta, Desert Institute, TSSR Academy of Sciences, Ashkhabad]

[Abstract] A model was developed for monitoring the grazing areas in Central Karakums. This model described seasonal and multi-year dynamics of green phytomass of trees and grasses using meteorological and geobotanical field data. The ecosystem represents a single dynamic polycomponent object, therefore a systemic approach was taken in the studies which made it possible to describe structural-functional organization of desert phytocenoses and the formation of crops as a function of the environmental factors and characteristics of the vegetation itself. The meteorological data from 1960 to 1973 were used in developing the model; 1960 through 1965 data on seasonal gain of green phytomass was also used. The model predicts vegetation cycles, soil water patterns, seasonal and long term productivity dynamics of the vegetation and even crop capacity. Future patterns can be predicted from data collected during the preceding year within a 30% accuracy which corresponds to the accuracy of the starting experimental data.
References 19 (Russian).

7813/9835
CSO: 1840/1156

UDC 581.526.534

# METHODOLOGY FOR ELABORATION OF ECOLOGICAL PROGNOSIS OF DESERTIFICATION (TURAN EXAMPLE)

Sverdlovsk EKOLOGIYA in Russian No 1, Jan-Feb 86
(manuscript received 30 Jun 84) pp 10-18

[Article by L.Ya. Kurochkina, G.B. Makulbekova and V.I. Terekhov, Institute of Botany, KazSSR Academy of Sciences]

[Abstract] Turan is considered to be in the desert ranges of the ancient Tetis bed, south of 48° latitude, from the Caspian Sea border to the Southeastern border of the USSR deserts. The territory includes variable geomorphology, lithology and ecoclimate. Different salt content of the ground, changing geomorphological situation and aridity led to changes in the flora which reflected adaptive potential to prevalent conditions. Methodologies are discussed for preparation of prognostic charts forecasting desert encrouchment (desertification) based on Turan territory. Ecosystem indices were plotted over litho - edaphic desert charts with consideration of geobotanical regionalization and aridity index. The degree and possible causes of desertification occurring with intensified cultivation of the land were proposed. Human contribution to desertification involves: river flow control followed by pollution and salinification of the grounds, felling of forests, drying out of the meadows, excessive grazing and rapidly growing road network. To limit these excesses, controls should be developed for the use of natural resources. Figures 4; references 9 (Russian).

7813/9835
CSO: 1840/1154

UDC 599.323.4

# STATISTICAL ANALYSIS OF NUMBERS OF LARGE GERBILS IN GEOGRAPHICAL POPULATIONS OF CENTRAL ASIAN DESERT PLAGUE FOCUS

Sverdlovsk EKOLOGIYA in Russian No 1, Jan-Feb 86 (manuscript received 24 Apr 84) pp 72-75

[Article by L.D. Dubyanskaya, I.Zh. Zhubanazarov, L.I. Kochkina and M.I. Shikhov, Central Asian Scientific Research Antiplague Institute, Alma-Ata]

[Abstract] To solve the problems of epizootic exploration and prognostication of plague spread, it is necessary to possess quantitative data on the numbers of rodent carriers of the plague microbe. The numbers of large gerbils were evaluated during spring and autumn in the following areas: Predustyurskaya (PU), Severopriaralskaya (SPA), Priaralskokarakumskaya (PAK), Zaaralskaya (ZA), Severokyzylkumskaya (SK) and Bakansskaya (B), basing the survey on the numbers of animals per burrow (since these numbers are quite stable). The observations were carried out during 1956-1981, yielding average arithmetic values for large gerbils. Two groups of animal colonies were identified: 1) PAK and PU, and 2) SK, ZA and SPA. The B population did not fit either of the above groups. Figures 1; references 8 (Russian).

7813/9835
CSO: 1840/1154

UDC 616.61/002.151-036.2(470.41)

EPIDEMIOLOGY OF HEMORRHAGIC FEVER WITH RENAL INVOLVEMENT IN TATAR ASSR

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL Vol 66, No 3, May-Jun 85
(manuscript received 14 Feb 85) pp 174-178

[Article by I.Z. Mukhutdinov, M.I. Goncharova and E.M. Gorlovskaya, Chair of Epidemiology, Kazan Order of the Red Banner of Labor Medical Institute imeni S.V. Kurashov; [Tatar] Republic Sanitary Epidemiologic Station of the Tatar ASSR Ministry of Health]

[Abstract] An analysis was conducted on the status of hemorrhagic fever with renal involvement in the Tatar ASSR over the 1959-1983 period, which showed that 3012 clinical cases were recorded in that 25-year time frame. The incidence of the disease has shown a steady increase from 1959 to 1983, reflecting in part improved diagnostic methods and a greater index of suspicion. Peak incidence of the disease is usually seen in the summer and fall. The rural incidence (121.7/100,000) has generally been almost twice as high as the urban incidence (69.8/100,000). In most cases of group outbreaks the infection occurred via the respiratory route (65.9%), and the remainder of cases occurred as a result of alimentary tract infection (34.1%). No indications of contact transfer came to light. The steady increase in the incidence of hemorrhagic fever with renal involvement indicates that the Tatar ASSR constitutes an endemic focus. The fact that preventive measures employed to date have been for the most part ineffective is indicated by the peak incidence of 17.9/100,000 encountered in 1983. Figures 3; references 5 (Russian).

12172/9835
CSO: 1840/2168

UDC 616.61-002.151:612.017.1(470.51)

NATURAL IMMUNITY OF UDMURT ASSR POPULATION AGAINST VIRUS RESPONSIBLE FOR HEMORRHAGIC FEVER WITH RENAL INVOLVEMENT

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL Vol 66, No 3, May-Jun 85
(manuscript received 25 Jun 84) pp 178-181

[Article by N.S. Apekina, Yu.A. Myasnikov, I.N. Gavrilovskaya, Z.Ye. Ozhegova, S.B. Bogdanova, A.P. Martynova, M.Ye. Yeltsova and S.D. Sterkhov, Institute of Poliomyelitis and Viral Encephalitides, USSR Academy of Medical Sciences, Moscow; Udmurt Republic Sanitary Epidemiologic Station, Udmurt ASSR Ministry of Health, Ustinov]

[Abstract] An indirect immunofluorescence antibody technique was employed in monitoring the status of immunity against the causative agent of hemorrhagic

fever with renal involvement in Ustinov and in 8 rayons. Analysis of 3922 sera samples collected in 1980-1982 showed that 130 were positive for specific antiviral antibodies. In the rural rayons, the incidence of seropositives was 2.4-fold higher than in Ustinov. In addition, positive results were 3-fold higher in the southern part of Udmurtia than in the northern region ($P<0.001$). The latter observation indicates, however, that the area at risk in Udmurtia is greater than had been supposed on the basis of previous studies since positive cases were identified in the northern regions. References 3: 2 Russian, 1 Western.

12172/9835
CSO: 1840/2168

UDC 575.083.13:576.851.48:577.21

# CONSTRUCTION OF NEW BROAD HOST RANGE VECTORS

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 6, Jun 85 (manuscript received 6 Mar 85) pp 471-477

[Article by P. Dobrovolskiy, V.I. Ugarov, V.A. Sakanyan and S.I. Alikhanyan (deceased), All-Union Scientific Research Institute for Genetics and Selection of Industrial Microorganisms, Moscow; Scientific Research Technologic Institute of Amino Acids, Yerevan]

[Abstract] The possibility of cloning genes in foreign microorganisms other than Escherichia coli is hampered by lack of suitable vectors. The present article reports on in vitro study of mutant plasmid RP4 as the vector for strains of Pseudomonas aeruginosa, P. putida and Agrobacterium tumefaciens. Mutagenesis of pRP401 with sodium bisulfite, and mobilization of non-conjunctive plasmid pRK2013 by crossing "double donors", are described. The hybrid pAS8 was the initial molecule for generating deletions in the RP4 genome. Plasmid DNA isolated from the $Tc^r$ $Ap^s$ clone, was analyzed with various restrictases, showing that the plasmid designated as pPD6 lost separation sites for the restrictases BamHI, PstI, KpnI, XhoI and EcoRI, but preserved a site for BglII and SalGI and two sites each for enzymes SstII and SmaI. Other results indicated that the mutant pPD6, in contrast to pRP401, has a segregational instability in E. coli and P. aeruginosa cells, and pPD6 can be transfered to bacteria by transformation and conjugation. Both pPD6 and pPD724 plasmids (constructed in this study) can be used as vectors for cloning DNA at several sites: BglII, SalI and SmaI for pPD6 and SalI and SmaI for pPD724 in gram-negative bacteria. Figures 2; references 21: 5 Russian, 16 Western.

12131/9835
CSO: 1840/2088

UDC: 575.215.3

# USE OF PLANT POLYTENE CHROMOSOMES FOR LOCALIZATION OF CLONED GENES

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 4, Feb 86
(manuscript received 29 Aug 85) pp 982-984

[Article by Y.V. Ananyev, Ye.Ye. Yakovleva, A.I. Chernishev and Ts.D. Khvyrdeva, Institute of General Genetics imeni N.I. Vavilov, USSR Academy of Sciences, Moscow]

[Abstract] Some types of plant cells contain highly polyploid nuclei in which individual polytene chromosomes can be identified. The polytene chromosomes of plants form bundles of sister chromosomes interconnected in the central region and not connected in the distal regions. Polytene plant chromosomes can potentially reach high degrees of polyteny, greatly increasing the sensitivity of the method of hybridization in situ, particularly in cases of unique dispersed or clustered sequences. The purpose of the present article was to determine the capability of utilization of polytene barley chromosomes for localization of cloned sequences of DNA by in situ hybridization. Analysis of the morphology of nuclei with polytene chromosomes indicates that they undergo the same transformation during the course of the cell cycle as ordinary diploid cell chromosomes. It is therefore important to find conditions under which the sister chromosomes of polytene chromosomes in barley conjugate like the sister chromosomes of polytene chromosomes of the drosophila. Figures 1; references 12: 2 Russian, 10 Western.

6508/9835
CSO: 1840/360

IMMUNOLOGY

UDC: 576.851.42.097.2.077.3

# STUDY OF RESOLUTION PROPERTIES OF BRUCELLOSIS PROTEIN-POLYSACCHARIDE ANTIGEN IN PASSIVE SKIN ANAPHYLAXIS REACTION

Alma-Ata IZVESTIYA AKADEMII NAUK KAZAKHSKOY SSR: SERIYA BIOLOGICHESKAYA in Russian No 5, Oct-Nov 85 pp 56-58

[Article by T.S. Dzhasybayeva, Scientific Research Institute of Cardiology, Kazakh SSR Ministry of Health, Alma-Ata]

[Abstract] The purpose of this work was to create an experimental model of increased immediate sensitivity to the brucellosis protein-polysaccharide antigen and to study the resolving property of the antigen in immediate specific allergy in the passive skin anaphylaxis reaction. The model of immediate elevated sensitivity was obtained by injecting 5 mg of the antigen subcutaneously in 20 guinea pigs. Both the tested antigen and a soluble brucellosis antigen caused accumulation of homocytotropic skin-sensitizing antibodies in the blood within two months, with a smaller degree of accumulation of antibodies with short-term skin sensitizing properties. Both types of antibodies were bound by exposure to the antigens, indicating antigen affinity. The studies show the possibility of reproducing immediate allergic reaction in an experiment using large doses of the tested antigen in combination with Freund adjuvant. References 4: 2 Russian, 2 Western.

6508/9835
CSO: 1840/391

UDC 616.23-003.667.6-092

# UPPER RESPIRATORY TRACT DISEASES IN WORKERS EXPOSED TO CHRYSOTILE-ASBESTOS DUST

Moscow VESTNIK OTORINO-LARINGOLOGII in Russian No 1, Jan-Feb 86 (manuscript received 3 Sep 85) pp 43-46

[Article by Ye.V. Ostapkovich, Department of Diseases of Ear, Nose and Throat (head, Honored scientists RSFSR professor V.S. Pogosov) Central Order of Lenin Institute for Advanced Training of Physicians, Moscow]

[Abstract] A study of morbidity and temporary incapacity to work among workers exposed to chrysotile-asbestos dust combined with examinations of their upper respiratory tract provided the basis for developing scientifically based methods of effective monitoring and treatment for all persons working under dusty conditions. It was found that a 2 $mg/m^3$ concentration of chrysotile-asbestos dust causes development of pathologies of the upper respiratory tract in the first years of contact of workers with it and the pathological processes intensify according to the length of service under exposure to dust. The study made it possible to classify workers according to findings of examination of the upper respiratory tract. The classification includes 1 group of workers with low risk of development of upper respiratory pathology from working under dusty conditions and 3 groups which had experienced specific changes in the upper respiratory tract. Group 2 includes persons with catarrhal processes in the upper respiratory tract, chronic tonsillitis and chronic sinusitis; group 3 includes workers with allergic and dystrophic processes in the upper respiratory tract and group 4 includes workers with diffuse hyperplasia (pre-cancerous processes) of the throat. Development of serious changes in the upper respiratory tract of workers exposed to dust must be considered to be an occupational disease, especially in workers with long service. References 12: 6 Russian, 6 Western.

2791/9835
CSO: 1840/2097

## WORKSHOP-SEMINAR ON MEDICAL LASER SCIENCE

Moscow MEDITSINSKAYA GAZETA in Russian No 38, 9 May 86 p 3

[Text] An All-Union workshop-seminar, "Medical Laser Science and Work Safety and Health Precautions for People Working with Lasers", for young scientists and specialists has been held at the international youth camp "Yunost'" of the Central Committee of the All-Union Leninist Communist Youth League.

Taking part in the seminar were 200 specialists from Moscow, Minsk, Odessa, Tyumen, Vladivostok, Dushabe and other cities. The use of lasers in diagnosing and treating various diseases was a topic of discussion at the seminar. The students were addressed by N.Ye. Savchenko, member of the Belorussian Academy of Sciences and Belorussian Minister of Health; P.A. Apanasevich, member of the Belorussian academy and director of the academy's Institute of Physics; G.P. Gurinovich, corresponding member of the Belorussian academy; and other scientists.

Participants in the seminar noted that the effects produced by laser radiation on humans must receive further and more careful study, and that personnel specializing in medical science must be trained.

FTD/SNAP
CSO: 1840/1203

UDC 616.1-085+615.849.5:546.291/292

# MECHANISM OF THERAPEUTIC ACTION OF HELIUM-NEON LASER IN SELECTED CARDIOVASCULAR DISORDERS

Kiev VRACHEBNOYE DELO in Russian No 6, Jun 85 (manuscript received 17 Jul 84) pp 17-21

[Article by B.S. Agov, L.M. Broun, A.Ye. Barsukov, N.D. Devyatkov, L.A. Monke-Monchinskaya, A.Ye. Zhuk, D.B. Tsykin and A.N. Muranov, Chair of Internal Diseases, Sanitary Hygiene Faculty, Leningrad Sanitary Hygiene Medical Institute]

[Abstract] Physiological and biochemical assays were used to monitor the therapeutic effects of helium-neon laser in the treatment of patients with angina pectoris (189 males and females, 33-76 years old) and lower extremity atherosclerosis obliterans (86 males and females, 46-76 years old). ULF-1 laser set at a power output of 0.2-0.4 $mW/cm^2$ was used for chest and back irradiation of the angina patients, using defocused beam to give a 10-11 cm diameter coverage for 1 min/day for 20 days. A 4 $mW/cm^2$ power output was employed for the obliterans patients for 4 min/day for 20 sessions. In both groups of patients microcirculatory (conjunctival, nail bed) improvements were noted, involving both vasodilation and diminished intravascular erythrocyte aggregation. In addition, leucocyte peroxidase and erythrocyte catalase activities were reduced by the therapy, resulting in greater production of energy-rich compounds. It thus appears that the beneficial effects of red (632.8 nm) light stem from improvements in capillary circulation and enhanced energy balance of mitochondria. References 6 (Russian).

12172/9835
CSO: 1840/2116

UDC 616.72-002.77-039-085.849.19-036.8

ANTI-INFLAMMATORY AND IMMUNOSUPPRESSIVE EFFECTS OF LASER THERAPY IN PATIENTS WITH RHEUMATOID ARTHRITIS

Moscow TERAPEVTICHESKIY ARKHIV in Russian Vol 57, No 8, Aug 85
(manuscript received 29 Mar 85) pp 37-39

[Article by G.V. Tupikin, No 3 Chair of Internal Diseases, 2nd Moscow Medical Institute imeni N.I. Pirogov]

[Abstract] The clinical effectiveness and anti-inflammatory and immunosuppressive activities of helium-neon therapy of rheumatoid arthritis were evaluated on the basis of subjective clinical reports and clinical chemistries. The cohort consisted of 10 patients, 24 to 50 years of age, with rheumatoid arthritis of 5 to 10 years duration. Prior to laser therapy the patients were maintained on nonsteroidal anti-inflammatory drugs, which were discontinued 3 days before laser therapy was commenced. Ulnar vein puncture was used to introduce a fiberoptic catheter for intravenous irradiation of the circulating blood with a 0.8-1.0 $mW/cm^2$ power output for 15-20 min, for a total of 2-3 irradiations at 6-7 day intervals. In addition, all the inflamed joints were subjected to external irradiation from the helium-neon laser at a power flux density of 0.14-0.15 $mW/cm^2$ for 1-5 min for 16-24 days. Within the first 16-20 h period after the first procedure subjective improvements were noted in the form of pain abatement, reduction of morning stiffness, greater mobility, etc. ESR was reduced and the levels of seromucoid decreased. In addition, the mean rheumatoid factor titers fell from 1:284.4 to 1:71.0. The clinical improvements were even more remarkable after the full course of laser treatment, with the rheumatoid titer factor falling to 1:24.4, indicating that the laser modality employed in this study represented an effective approach to the therapy of rheumatoid arthritis.
References 7 (Russian).

12172/9835
CSO: 1840/2120

LASER TREATMENT OF MYOCARDIAL INFARCTS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 30 Mar 86 p 4

[Article by Yu. Leladze, Tbilisi]

[Abstract] Medical scientists in Georgia have been among the more active proponents in the user of lasers in medicine, with the more recent application dealing with laser treatment of myocardial infarction. More than 70 patients in that category have been treated with laser irradiation, via a catheter, of the damaged portion of the myocardium at the Scientific Research Institute of Experimental and Clinical Therapy headed by N. Kipshidze, corresponding member of the USSR Academy of Medical Sciences. Laser irradiation of the damaged myocardium was found to facilitate recovery

of its rhythmicity, and to save lives in situations where all other means have been unsuccessful. The methodology is rather simple as far as medical technology goes, which means that it will soon be practiced at other medical institutions.

12172/9835
CSO: 1840/1130

UDC 617-001.4-002.3-089:615.849.19

USE OF HELIUM-CADMIUM LASER FOR TREATMENT OF PURULENT WOUNDS

Moscow KHIRURGIYA in Russian No 11, Nov 85 (manuscript received 28 May 84) pp 97-101

[Article by V.K. Gostishchev, A.B. Shekhter, V.A. Vertyanov, A.G. Khanin, V.V. Shur and A.N. Novochenko, Chair of General Surgery (Chairman: Academician USSR Academy of Sciences V.I. Struchkov) and Central Scientific Research Laboratory imeni S.I. Chechulin (Chief: professor A.V. Nikolayev) First Moscow M-dical Institute imeni I.M. Sechenov]

[Abstract] Effectiveness and future potential of the application of helium-cadmium laser beams generated in the blue band of the optical spectrum for treatment of purulent wounds was evaluated experimentally and in clinical application. Experimental data showed that this beam helps in cleansing the wound from purulent-necrotic masses and microbes, cuts short the alterative and exudative inflammation phases, normalizes microcirculation and activates proliferation of fibroblasts and maturation of granulation tissue. At a single dose of 4.5 J it does not harm the tissue and leads to minimal, if any, local complications. Clinical use led to a successful shortening of the healing process by 8.7 days in 69% of the patients. There were no complications noted. References 6 (Russian).

7813/9835
CSO: 1840/2050

UDC 616.124.7-008.311-089:615.849.19

## LASER SURGERY ON CARDIAC CONDUCTING PATHWAYS

Moscow KARDIOLOGIYA in Russian Vol 25, No 5, May 85
(manuscript received 26 Dec 83) pp 98-99

[Article by Yu.Yu. Bredikis, V.A. Obelenyus, R.V. Ambartsumyan, Ye.P. Markin, Ye.L. Koshelev and S.R. Zdradovskiy, Kaunas Medical Institute; Physical Institute imeni P.N. Lebedev, USSR Academy of Sciences, Moscow]

[Abstract] Laser surgery was employed to effect an A-V block in two patients with supraventricular tachycardia. The surgery was performed with a neodymium-doped YAG laser yielding a wavelength of 1.06 m, with the laser light delivered to the bundle of His via an optical fiber within a cardiac catheter. Limited clinical details are provided on one case involving a 43 year old man who had developed supraventricular tachycardia following a viral infection. An A-V block was successfully effected with two courses of irradiation (7 sec, 25 mW, followed in a few minutes by 20 sec irradiation). Three weeks later the patient received an implanted cardiac pacemaker EKS-222 after a rhythm of 30-35 beats per minute had stabilized as a result of the laser surgery. Figures 1; references 9: 2 Russian, 1 Czech. 6 Western.

12172/9835
CSO: 1840/2119

## COMBINED USE OF OPEN CURETTAGE AND LASER THERAPY IN TREATMENT OF PARODONTITIS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 1, Jan 86 pp 69-71

[Article by Yu.V. Fatakhov and L.Ya. Zazulevskaya, Department of Dentistry, Alma-Ata Medical Institute]

[Abstract] A study of the effectiveness of combined use of surgery and laser therapy in complex treatment of parodontitis showed the high effectiveness of the method and justified its introduction into general practice. The studies included 67 persons ranging in age from 19-55 years with mild or severe acute parodontitis. Comparison of the success of treatment of a group of persons undergoing combined surgery and laser treatment with that of a group of the same age, same number of men and women, same stage of development and same length of the disease--treated with open curettage--showed the superiority of the combined therapy. Laser therapy involved helium-neon laser radiation in 5 fields of the upper and lower jaw with 15-second exposure in each field.

2791/9835
CSO: 1840/2095

UDC 616.284/.286-002-085.849.19

# TRANSTUBAL LASER RADIATION THERAPY OF INFLAMMATORY DISEASES OF AUDITORY TUBE AND MIDDLE EAR

Moscow VESTNIK OTORINO-LARINGOLOGII in Russian No 1, Jan-Feb 86
(manuscript received 9 Jul 85) pp 63-66

[Article by M.Kh. Timirgaleyev, candidate of medical science, M.A. Shuster, doctor of medical sciences and S.L. Gavrilenko, Department of Otorhinolaryngology (head-doctor of medical sciences M.A. Shuster, Moscow Oblast Clinical Scientific Research Institute imeni M.F. Vladimirskiy (MONIKI) (director-professor A.M. Sazonov)]

[Abstract] Effectiveness of transtubal laser radiation therapy was assessed by audiometric and tympanometric methods of study combined with study of microflora of the middle ear (in presence of otorrhea) and the cytological picture of the mucous membrane of the tympanic cavity dynamics before and after laser therapy. Transtubal laser therapy was used on 40 persons: 14 with chronic tubal otitis, 12 with chronic purulent mesotympanitis, 10 with eustachitis and 4 with secretory otitis. The control group included 40 persons: 24 with various forms of purulent tubal otitis, 10 with chronic purulent mesotympanitis and 6 with eustachitis. This group underwent endaural laser therapy. Both groups include persons ranging in age from 16-64 years with disease processes lasting from 1 month up to 11 years. Results of therapy were much better in the first group. In the first 2-3 days after transtubal laser therapy, patients experienced hearing improvement with no purulent processes in the auditory tube and otorrhea ceased in persons with tubal otitis and mesotympanitis. In persons in the control group, otorrhea stopped only on the 4th-5th day. There was no hearing improvement in eustachitis in persons in the control group but there was marked improvement in the first group. There were fewer relapses after transtubal laser therapy. The cytological picture of the tympanic membrane mucosa after transtubal therapy showed only single cells of cast-off epithelium and absence of other pathological cells. The findings justified the use of transtubal laser therapy. References 8: 6 Russian, 2 Western.

2791/9835
CSO: 1840/2097

UDC 616.22-089:615.849.19(048.8)

## USE OF SURGICAL LASER IN LARYNGOLOGY

Moscow VESTNIK OTORINO-LARINGOLOGII in Russian No 1, Jan-Feb 86
(manuscript received 9 Apr 85) pp 77-81

[Article by A.M. Dunayevskaya, Department of Restorative Surgery of Throat and Trachea for Children (head-Doctor of Medical Sciences D.G. Chireshkin) Children's Clinical Hospital No 2 imeni I.V. Rusakov, Moscow]

[Abstract] A survey of the literature of recent years on use of lasers in laryngological surgery showed the growing importance of this method. The advantages of endolaryngeal laser microsurgery over traditional methods were discussed briefly. Discussion of use of high-power lasers in restorative surgery of the throat and trachea in treatment of scar stenosis included remarks by proponents and opponents of this procedure. Results of laser therapy in endolaryngeal operations on 15 persons with papillomas and tumors of the throat were presented and discussed. Use of lasers to remove nodules, polyps, granulation growths and cysts of the vocal fold was discussed. Use of laser therapy in palliative procedures in various forms of throat cancer and tumors was discussed. Some risks of use of laser therapy in treatment of diseases of the throat are described and measures for preventing these risks discussed. Complications and side effects from the use of lasers in throat surgery are discussed as well as anesthesiology procedures used during laser therapy of throat diseases. The need for improvement of laser therapy equipment is emphasized. References 60: 8 Russian, 52 Western.

2791/6508
CSO: 1840/2097

UDC 616-002.3-053.2-08:615.849.19

## HELIUM-NEON LASER TREATMENT OF PYO-INFLAMMATORY DISEASES IN CHILDREN

Leningrad VESTNIK KHIRURGII in Russian No 7, Jul 85
(manuscript received 17 Dec 84) pp 85-87

[Article by G.D. Mezentsev, doctor of medical sciences, V.N. Kalinkin, A.A. Sopko, N.V. Chizhikov and N.V. Ploskov, Chair of Pediatric Surgery (Chairman: G.D. Mezentsev), Tyumen State Medical Institute]

[Abstract] Beginning in January 1983, helium-neon laser therapy has been used on 119 children aged 10-14 years to treat pyo-inflammatory processes of different genesis. It was observed that after laser treatment the wounds cleared much faster of the purulent fluids. There is no scab formation with laser treatment; pain disappeared after 4-5 sessions. Combining laser treatment with administration of proteolytic enzymes (terrilitin, chymopsin, chymotrypsin, trypsin) was especially effective. None of the

patients showed any bad side effects due to laser irradiation. Laser therapy is highly recommended for treatment of pyo-inflammatory processes in soft tissues and in bones of pediatric patients. References 7 (Russian).

7813/9835
CSO: 1840/2146

UDC 617-089:615.849.19

USE OF LASERS IN SOME AREAS OF SURGERY

Leningrad VESTNIK KHIRURGII in Russian No 7, Jul 85
(manuscript received 6 Mar 84) pp 137-141

[Article by O.K. Skobelkin, professor, Ye.I. Brekhov, professor, and V.I. Korepanov, doctor of medical sciences]

[Abstract] This review-type article discusses often contradictory views on the application of laser technology to surgery. The following surgical interventions are covered: stomach, bowel, organs of the anorectal zone, gall bladder, liver, pancreas, skin-plastic surgery and purulent disorders of soft tissue. The future developments will concentrate on microsurgery and the greatest successes are to be expected in this area. In experimental stages it is possible to revascularize myocardium with laser irradiation. Wide application of endoscopic techniques are predicted. References 56: 13 Russian, 43 Western (4 by Russian authors).

7813/9835
CSO: 1840/2416

UDC 616-001.4-08-06-053.3/6

EFFECTS OF HELIUM-NEON LASER IRRADIATION ON PERIPHERAL CIRCULATION IN TREATMENT OF CHILDREN WITH CHRONIC WOUNDS

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 6, Jun 85
(manuscript received 12 Feb 85) pp 24-27

[Article by S.A. Schastnyy, V.V. Volkov, V.V. Kuzovlev, Ye.P. Kuznechikhin and V.P. Nemsadze, Chair of Pediatric Surgery and Orthopedics, 2nd Moscow State Order of Lenin Medical Institute imeni N.I. Pirogov]

[Abstract] An evaluation was conducted on peripheral circulatory effects attendant to the use of helium-neon laser in the treatment of 15 children, 7 to 14 years of age, for chronic (1-6 months) surgical and traumatic leg wounds. Comparative control data were obtained for 12 subjects 17 to 22 years of age without leg pathology. Treatment was conducted with an OKG-12 laser emitting with a power output of 0.5-5.0 $mW/cm^2$, using 3-5 min

exposures per field per day. Assessment of the rheographic data showed that in the patient group arterial filling was depressed on conjunction with moderate peripheral vasoconstriction and diminished venous outflow. Irradiation of the affected areas resulted in a stable increase in arterial filling consequent to diminished tone of the precapillaries. In the control subjects, peripheral circulation was also enhanced as a result of vasodilation. Figures 1; references 6 (Russian).

12172/9835
CSO: 1840/2163

MARINE MAMMALS

## PROBLEM-SOLVING ABILITIES OF SEALS

Moscow SOVETSKAYA ROSSIYA in Russian 7 Jan 86 p 4

[Article by S. Polevoy, Kurortonoye, Sudakskiy Rayon]

[Abstract] This article reports a discussion with Candidate of Biological Sciences E.Ya. Bliznyuk, Scientific Secretary of the Karadag Department of the Institute of Biology of the Southern Seas, Ukrainian Academy of Sciences. Bliznyuk's group has been studying behavioral adaptation in marine mammals for five years, and has concluded that the northern seal is capable of solving complex logical problems and of acting as an assistant to man in the performance of jobs at sea. The author contrasts the work with trained seals at the Institute with circus work, noting that the seals trained at the Institute are not under such constant control as in a circus performance, and that the goal is to study and understand the capability of the seals rather than to entertain. The seals at the Institute have learned to read instructions from a blackboard and perform tasks based on those instructions.

6508/9835
CSO: 1840/1077

MEDICINE

UDC 612.17-06:612.275.1(049.32)

## ALPINE CARDIOLOGY

Moscow KARDIOLOGIYA in Russian Vol 25, No 6, Jun 85 pp 124-125

[Review by N.M. Mukharlyamov, Moscow, of book by M.M. Mirrakhimov and T.S. Meymanaliyev, VYSOKOGORNAYA KARDIOLOGIYA: OCHERKI [High Altitude Cardiology: Essays], Frunze, Kyrgyzstan, 1984, 316 pp]

[Abstract] This book consists of a series of essays by a leading Soviet cardiologist specializing in high-altitude conditions, a field first fully appreciated for its importance in the USSR. Special emphasis is placed on the phenomenon of adaptation, and the complications that this process itself may induce in pre-existing conditions or anomalies of the cardiovascular system. While pointing out that alpine conditions may have therapeutic use in the management of cardiovascular diseases, they also indicate contraindications and function test parameters that would proscribe an alpine experience for selected groups of people. Individuals with right ventricular hypertrophy, for example, constitute a particular risk group in whom adaptive changes would have serious sequelae.

12172/9835
CSO: 1840/2115

UDC 617-089-7:[615.472.3:533.9]

## PROSPECTS FOR PLASMA SCALPEL USE IN SURGERY

Leningrad VESTNIK KHIRURGII IMENI I.I. GREKOV in Russian No 1, Jan 86 (manuscript received 11 May 85) pp 7-10

[Article by V.S. Savelyev, academician, L.A. Serykh, A.S. Beresnev, I.V. Stupin, professor, and V.S. Volkoyedov, candidate of medical sciences, Second Moscow Order of Lenin State Medical Institute imeni N.I. Pirogov (Rector: professor V.N. Yarygin)]

[Abstract] Use of a plasma scalpel was first described in 1969 (Hishimoto, et al.; Roberts, et al. Its advantages over a laser scalpel were

subsequently reported. High plasma current intensity is required for effective dissection of biological tissue in order to minimize thermal exposure. Plasma scalpel should not be used in all surgical interventions: it is not recommended for cutting skin and frontal stomach wall because then the healing process is slower than with steel scalpels; however, in case of internal organs, plasma scalpels give superior results. Considerably less blood loss was observed with the use of (Soviet-made) plasma scalpels than with steel or electric knives. Along with rapid and effective cutting, plasma scalpel assures adequate hemostasis and shortens the time of surgical procedure. The wounds are sterilized and coagulation of vessels stops the bleeding effectively. Figure 1; references 7: 1 Russian, 6 Western.

7813/9835
CSO: 1840/2082

UDC 616.71-089.843:615.464:666.232.2

PRESENT AND POTENTIAL APPLICATIONS OF CORUNDUM-CERAMIC BONE PROSTHESES

Moscow KHIRURGIYA in Russian No 11, Nov 85 (manuscript received 18 Apr 85) pp 124-128

[Article by O.N. Gudushauri and G.G. Dumbadze, professors, and G.S. Mikadze, Scientific Pedagogical and Clinical-Experimental Center of Trauma and Orthopedics (Director: Academician O.N. Gudushauri) Central Scientific Research Laboratory of Tbilisi Medical Institute (Director: G.G. Dumbadze)]

[Abstract] Excellent physical-mechanical and dielectric properties, chemical stability and biological inertness of corundum (aluminum oxide)-ceramic material made it an excellent candidate for endoprostheses of multiple application. It surpasses metallic prostheses because of its compatibility with bone and soft tissue and the ability of true replication of the anatomic detail of the fragment being replaced. No local inflammation cases were noted in its application. Using corundum ceramic makes it possible to rapidly reconstitute the bone integrity even in complex fractures. Figures 1; references 10: 7 Russian, 3 Western.

7813/9835
CSO: 1840/2050

UDC 616-009.614-08-039.57

ORGANIZATION OF OUT-PATIENT CLINIC ANESTHESIA

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 1, Jan 86, pp 25-26

[Article by T.B. Tuleutayev and B.Sh. Muratov, Semipalatinsk Medical Institute]

[Abstract] The effectiveness of use of local anesthesia in a municipal emergency medical center was studied in order to determine the need for use of general anesthesia in out-patient (ambulatoriya) treatment. There has been an annual increase in the number of patients treated at the center with more than 80 percent of the patients having injuries from household accidents. The center treated 6117 persons in 1983 and 6972 in 1984, including 1810 and 3919 children, respectively. The control group included 107 persons with slight injuries treated under novocain analgesia only. Only 12 percent of the procedures performed under local anesthesia were painless. Medical examination of patients was inadequate and infection appeared in 53 percent of the cases, after surgical treatment. Concomitant diseases were found in 14 adults whose injuries became infected. The trauma intensified these diseases. The preliminary data obtained indicates that out-patient clinic anesthesiology should be organized more carefully, should involve a differentiated approach to selection of methods of anesthesiology and detection of concomitant diseases. Selection of a method of anesthesia must taken into account the fact that local anesthesia does not always provide adequate psycho-emotional protection for patients and, therefore, forms of general anesthesia must be available.

2791/9835
CSO: 1840/2095

UDC 617-001.17-036.11-07:616.153.915-39-074

INTENSITY OF FREE RADICAL OXIDATION OF LIPIDS DURING ACUTE PERIOD OF BURN DISEASE

Moscow KHIRURGIYA in Russian No 11, Nov 85 (manuscript received 28 Nov 83) pp 95-97

[Article by Candidate of Biological Sciences Yu.Ye. Babskaya, and Candidates of Medical Sciences V.A. Lavrov and N.A. Olyunina, Division of Thermal Injuries (Chief: professor V.K. Sologub), Institute of Surgery imeni A.V. Vishnevskiy (Director: Academician, USSR Academy of Medical Sciences M.I. Kuzin), Moscow]

[Abstract] The goal of this work was to study changes in lipid peroxides in plasma and membrane erythrocytes of burned patients during acute periods

of burn disease. 38 Patients, 18-60 years old were studied with II-III a+b and IV degree burns covering from 15 to 95% of body surface during the 13 post-trauma days. During the shock period, no significant changes were noted in plasma while in the erythrocyte membranes the perioxide oxidation of lipids was definitely elevated. Later, during the toxemia period, lipid oxidation in plasma was elevated in half of the patients while only slight elevation was noted in the membrane. No definite relationship was noted between these findings and the extent of the disease. References 14: 11 Russian, 3 Western.

7813/9835
CSO: 1840/2050

UDC 616.5-001.17-089.843:615.361.018.7

TREATMENT OF BURN WOUNDS USING AUTOEPITHELIUM GROWN IN VITRO (LITERATURE REVIEW)

Moscow KHIRURGIYA in Russian No 11, Nov 85 (manuscript received 26 Oct 84) pp 147-151

[Article by M.I. Kuzin, professor, and Doctors of Medical Sciences V.P. Tumanov and L.S. Basagina, Institute of Surgery imeni A.V. Vishnevskiy, Moscow]

[Abstract] The first task in treating burn disease is rapid and complete reconstitution of the skin to prevent irreversible processes which could occur; covering the wound with transplanted skin prevents infection and dehydration of the body. Since the 50's, considerable research has been carried out in three directions. Homo-, allo- and xenotransplants are used as temporary measures preceding the final step of autodermoplastics. Considerable effort is devoted to development of synthetic skin. Scientists at MIT developed such a "skin" called Stage I and Stage II with reasonable practical application. The third direction is based on epithelium cultured in vitro. The remainder of the article is devoted to the problem of cell cultures; prevention of the growth of fibroblasts, temperature and composition of the required medium and the use of cultivated epithelium in skin transplants. References 24: 1 Russian, 23 Western.

7813/9835
CSO: 1840/2050

UDC 616-78:615.835.35

WAYS OF IMPROVING BIOTRON APPARATUS

Kiev VRACHEBNOYE DELO in Russian No 10, Oct 85 (manuscript received 26 Apr 85) pp 70-72

[Article by I.V. Popova, B.V. Avdeyev and V.S. Udintsev, All-Union Scientific Research Drawing and Design and Technological Institute of Power Sources]

[Abstract] Basic means of improving overall performance of a Biotron apparatus [an apparatus to stabilize a number of parameters--pressure, temperature, room humidity--D.I. Panchenko, 1964] were revealed by analysis of each contour individually in order to select optimum schemes of operation as a whole. Improvement of automatic regulation of barometric pressure is discussed. Two methods of air temperature regulation in the chambers (qualitative and quantitative methods) are suggested and discussed briefly. Regulation of relative air humidity is discussed. Use of a control computer to monitor regulation parameters and to ensure the required dynamic regimes of the Biotron system is recommended. Emphasis is placed on the possibility of increasing the number of parameters of control, including the air ions concentration and the electromagnetic setting. References 4 (Russian).

2791/9835
CSO: 1840/2093

UDC 616-001:611.713:616-71:616-08006

DIAGNOSIS AND TREATMENT OF CHEST TRAUMAS AFTER LATE HOSPITALIZATION

Ashkhabad ZDRAVOOKHRANENIYE TURKMENISTANA in Russian No 5, May 85 pp 32-36

[Article by B.S. Soltanov, Department of Traumatology, Orthopedic and Field Surgery (acting head, O.M. Mukhammedov, candidate of medical sciences), Turkmen Order of Friendship of Peoples State Medical Institute (rector-Professor N.N. Nurmamedov)]

[Abstract] Clinical analysis of 243 persons who were hospitalized 1-12 days after suffering chest trauma showed differences in diagnosis and in required treatment because of late hospitalization. Patient injuries included chest trauma, rib fractures (single and multiple), fractures of the breastbone, penetrating wounds of the chest, lungs, heart, abdomen and pericardium. The relationship of late hospitalization to difficulties encountered in diagnosis is described and discussed for various injuries and various times of late hospitalization. Treatment used was predominantly conservative with the need for emergency care being much rarer than is the case immediately after acute injuries. Novacain block used in treatment of rib fractures was sometimes ineffective in the

region of injury. Evacuation of the pleural cavity and drainage and sanitation of the trauma was an important step in some cases. Active prophylactic measures were used to prevent respiratory complications. Use of antibacterial drugs, promotion of effective pulmonary ventilation and removal of secretions from air passages was an important part of treatment. Delay in hospitalization increased risk of development of pulmonary insufficiency and inflammational complications.

2791/9835
CSO: 1840/2094

UDC 617-089.166-089.168.8-02-07

CAUSES OF INTRAOPERATIVE DEATHS

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 5, Sep-Oct 85 (manuscript received 25 Jul 84) pp 3-5

[Article by B.S. Uvarov, V.I. Sidorenko, A.A. Dizhe and V.A. Prykin, Chair of Anesthesiology and Resuscitation, Military Medical Academy imeni S.M. Kirov, Leningrad]

[Abstract] An analysis was conducted on 134 cases of intraoperative death to delineate the causes, based on case histories covering a 12 year period at a number of hospitals. Excluded from the study were operations requiring extracorporeal circulatory assist or hypothermia. The age of the patients ranged from 2 to 80 years, with thoracic and abdominal operations accounting for 71.6% of the cases, and emergency operations for 28.4%. The breakdown of the analytical data showed that 59% of the deaths were due to surgical complications, 14.1% were due to factors pertaining to anesthesia (halothane overdosage, droperidol overdosage, improper anesthetics, inadequate aspiration, inadequate respiratory support), and 23.9% of the deaths were not directly attributable to anesthetic factors. The evidence seemed to indicate that while clinical indications for surgical intervention are on the increase in view of advancements in surgery, developments in anesthesiology have not kept pace to adequately support such operations and, hence, anesthesiological factors account for a higher percentage of intraoperative deaths. References 5: 2 Russian, 3 Western.

12172/9835
CSO: 1840/2117

MEETINGS OF LENINGRAD SCIENTIFIC SOCIETY OF TRAUMATOLOGISTS AND ORTHOPEDIC SURGEONS

Leningrad VESTNIK KHIRURGII in Russian No 7, Jul 85
(manuscript received 22 Jan 85) pp 151-156

[Article by A.Ye. Belousov]

[Abstract] Minutes of five meetings are presented. The 886th session held 31 Oct 84 was presided over by G.D. Nikitin and S.A. Linnik, Secretary, Demonstration of successful therapy for disseminated purulent peritonitis was presented by Yu.B. Shapot, I.Ya. Sadkova and V.L. Kartashkin. A.V. Rak, I.P. Kartashev and O.A. Semenova demonstrated reductive operation during complicated multiple fractures of pelvic bones. V.A. Avekiyev gave a paper on reatment of joint injury using distraction apparatus. The 887th session was held 14 Nov 84 with the same chair. Two demonstrations were presented: V.I. Karptsov and L.G. Serykh on treatment of a patient with hip bone deformation and contraction of the knee, and P.I. Vidyk, G.M. Frolov and A.S. Novikov on treatment of a wide wound perineum and pelvis complicated with anerobic infection. A.P. Pozdeyev presented a paper on congenital pseudotibia joints in children. The 888th session held 28 Nov 84 with G.A. Bairov in chair and R.V. Stepanova, secretary covered demonstrations on surgical treatment of extensive contracture of the knee by V.I. Karptsov and D.N. Nenashev; and one on juxtaarticular osteoid-osteoma by L.N. Alyakin, Yu.A. Lapkin, Ye.N. Yaroshevskaya and V.I. Sadofyeva. V.L. Andrianov, K.N. Bystryy, V.I. Kruk, A.P. Pozdeyev, Yu.I. Mishchenko, Yu.V. Shvedovchenko and S.G. Terekhov authored a presentation on use of bone matrix in pediatric orthopedics. The 889th session, held 12 Dec 84 was chaired by L.K. Zakrevskiy, secretary: M.I. Popov. Z.K. Bashurov and G.I. Zhabin demonostrated endoprosthetic heads of the hip bone in pseudocervical joint. E.V. Ulrikh, V.M. Nikiforov and Ye.A. Bazhanov demonstrated orthopedic aspects of the diagnosis and treatment of congenital split of the spinal chord. Finally, the 890th session held 26 Dec 84 was chaired by S.S. Tkachenko and I.R. Grachev as the secretary. The topics covered demonstration of the use of cantilever shafts in treatment of pseudo-joints of the femur by E.G. Gryaznukhin and I.S. Tseykhin. A seminar was conducted by V.I. Karptsov, E.G. Gryaznukhin and K.A. Novoselov on theetopic of combined use of pins and shafts in compression-distraction apparatus.

7813/9835
CSO: 1840/2146

UDC 615.387.015.4

COMPARATIVE STUDY OF ELECTRICAL AND MORPHOLOGICAL PROPERTIES OF PRESERVED BLOOD

Moscow GEMATOLOGIYA I TRANSFUSIOLOGIYA in Russian No 1, Jan 86
(manuscript received 10 Oct 84) pp 49-51

[Article by V.K. Sologub, V.A. Lavrov, B.V. Vtyurin and A.I. Marchuk, Institute of Surgery imeni A.V. Vishnevskiy, USSR Academy of Medical Sciences, Moscow]

[Abstract] Relationships between the change of form of erythrocytes as an indicator of their functional keeping capacity and electrical properties of preserved blood as a function of periods of storage were studied and described. Changes of volumetric resistance, surface resistance and specific electroconductivity of donor preserved blood and morphological changes of erythrocytes were compared over a period of 23 days. Surface resistance remained at about the same level for the first 5-6 days but dropped abruptly from the 6-8th day. These low indicators lasted for 5-6 days and then began to increase gradually. It was assumed that the abrupt reduction of surface resistance of stored blood was due to massive formation of modified, functionally inferior forms of erythrocytes. Figures 2; references 12 (Russian).

2791/9835
CSO: 1840/2138

UDC 616.15-082

IMPROVEMENT OF ORGANIZATION AND STANDARDIZATION OF HEMATOLOGICAL SERVICE WORK IN OUT-PATIENT POLYCLINICS

Moscow GEMATOLOGIYA I TRANSFUSIOLOGIYA in Russian No 1, Jan 86
(manuscript received 20 Nov 84) pp 52-53

[Article by A.A. Rakityanskaya, Minsk]

[Abstract] Outpatient [ambulatoriya-polyclinic] hematological care in Belorussia improved over the last 10 years with availability of modern scientific equipment making high-quality diagnosis and treatment possible. Increase in the work volume aggravated the problem of establishing a rational work load for hematologists and other physicians and reduced availability of some services. Aspects of present problems facing the hematological service are discussed, with the Minsk Hematological Clinic being used as an example. Quarterly medical field trips into various regions of the republic, in cooperation with the BSSR Ministry of Health Medical Aviation Service helped to bring the level of hematological care nearly up to the level of care available in urban areas. The situation in remote areas was not much improved.

2791/9835
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UDC 615.387.011:612.111.32].099

RATE OF OLIGOPEPTIDE ACCUMULATION IN PRESERVED BLOOD

Moscow GEMATOLOGIYA I TRANSFUZOLOGIYA in Russian No 9, Sep 85
(manuscript received 5 May 84) pp 42-45

[Article by N.A. Belyakov, A.V. Solomennikov and M.Ya. Malakhova, Leningrad Institute for the Advanced Training of Physicians imeni S.M. Kirov]

[Abstract] Ultrafiltration studies were conducted on preserved blood stored at 4°C to determine the kinetics of 300-5000 MW oligopeptide formation, with subsequent toxicity testing of these oligopeptides on white mice. Time course analysis showed that after 9 days of storage the highest concentration of the oligopeptides was found in the buffy coat fraction (8.86 $\pm$ 1.14 g/liter), followed by the erythrocyte layer (3.87 $\pm$ 0.83 g/liter), and the plasma (2.62 $\pm$ 0.62 g/liter). Intraperitoneal injection of 15 mg/kg, 10 mg/kg and 5 mg/kg of the oligopeptides into white mice led to mortality figures of 100, 70 and 50%, respectively, with the animals succumbing due to pulmonary edema. Activated charcoal was an effective agent for the removal of the oligopeptides by adsorption. The formation of such protein fragments during storage underlines yet another aspect of the potential of stored blood and blood products for exerting toxic effects. Tables 2; references 9: 8 Russian, 1 Western.

12172/9835
CSO: 1840/2164

UDC 616-036.882-08-039.72:681.31

DEONTOLOGICAL ASPECTS OF USE OF MONITOR-COMPUTER SYSTEMS IN INTENSIVE CARE AND REANIMATION DEPARTMENTS

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 6, Nov-Dec 85
(manuscript received 5 Mar 85) pp 24-26

[Article by R.N. Lebedeva and A.A. Yermenko, Department of Intensive Care and Reanimation (director- R.N. Lebedeva) VNTsKh, USSR Academy of Medical Sciences, Moscow]

[Abstract] Consideration of deontological aspects of basic trends in the use of electronic computers in departments of reanimation and anesthesiology included discussion of development of data banks and storage of case histories in a computer memory, patient observation by computers, computer assessment of the state of physiological systems and the organism on the basis of diagnostic algorithms and mathematical models, provision of computer-assisted therapeutic recommendations, automated treatment and physician training. The importance of understanding the capabilities and

limitations of computers was emphasized. All aspects of the problem must be considered in terms of the physician-patient-computer as an entity. This makes the computer a major new tool for more efficient diagnosis and treatment. Physicians, nurses and technical personnel must make sure all computerized equipment is working properly at all times. References 11: 3 Russian, 8 Western.

2791/9835
CSO: 1840/2137

UDC 616.831-006.328+616.432-006.55]-089.168.1:615.357.37.577.175.724

GLUCAGON IN COMBINED INTENSIVE CARE OF PATIENTS WITH INJURY OF DIENCEPHALIC REGIONS IN EARLY POST-OPERATIVE PERIOD

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 6, Nov-Dec 85 (manuscript received 15 Jan 85) pp 27-31

[Article by I.Ya. Usvatova, V.L. Tenediyeva and O.G. Arestov, Scientific Research Institute for Biological Testing of Chemical Compounds (acting director V.P. Yakovlev, doctor of medical sciences), Institute of Neurosurgery imeni N.N. Burdenko (Director A.N. Konovalov, academician USSR Academy of Medical Sciences), USSR Academy of Medical Sciences]

[Abstract] Patients (63, ranging in age from 19-65 years) with hypophyseal adenoma (42), meningioma (16) or craniopharyngioma (5) and 10 clinically healthy persons were examined in a study of various endocrine and psycho-neurological disturbances concomitant with tumors in the diencephalic region in order to study the validity of the use of glucagon in such cases. The patients displayed hypothalamic and pancreatic dysfunction with increase of the blood somatostatin and neurotension level, hyperinsulism and glucose tolerance reduction. Use of glucagon in the early post-operative periods was completely justified. Glucagon injection improved EKG dynamics and the neurological symptomatics and functional state of the brain, which improved the EEG parameters. Figures 5; references 29: 4 Russian, 25 Western.

2791/9835
CSO: 1840/2137

UDC 616.34-007.272:576.8.095.21

GAS GANGRENE IN PATIENT WITH ADHESIVE INTESTINAL OBSTRUCTION

Kiev VRACHEBNOYE DELO in Russian No 7, Jul 85 (manuscript received 15 Feb 85) pp 24-25

[Article by D.I. Krivitskiy, V.A. Shulyarenko and I.A. Babin, 2nd Chair of Surgery, Kiev Institute for the Advanced Training of Physicians]

[Abstract] A case study is presented of a 54-year-old male patient who developed histotoxic clostridial infection following surgical correction of intestinal obstruction due to adhesions. The patient's condition took a sudden turn for the worse 12 h after surgery and, despite intensive therapy including anticlostridial serum, the patient expired on the following day. Autopsy findings demonstrated clostridial myonecrosis of the abdominal wall, while bacteriological studies yielded cultures of Cl. perfringens and Cl. septicum. The infection apparently resulted from release of the clostridia from the intestinal tracts into the peritoneal cavity during surgery. This case should call attention of surgeons to the risk of clostridial infections in intestinal surgery.

12172/9835
CSO: 1840/2165

UDC 616.831.9-002-022-078.4-053.8

CLINICAL AND MORPHOLOGICAL CHARACTERISTICS OF COMBINED VIRAL AND BACTERIAL MENINGOENCEPHALITIDES IN ADULTS

Kiev VRACHEBNOYE DELO in Russian No 7, Jul 85 (manuscript received 18 Mar 85) pp 112-116

[Article by A.F. Frolov, Ye.K. Trinus, Yu.A. Barshteyn, O.A. Yarosh and V.V. Kononenko, Kiev Scientific Research Institute of Epidemiology and Infectious Diseases imeni L.V. Gromashevskiy]

[Abstract] In order to define the clinical and morphological characteristics of combined viral and bacterial meningoencephalitides in adults, an analysis is presented of 30 such cases involving male and female patients. The clinical and histological data showed that such cases have a high incidence of involvement of cortical and brain-stem structures, complicated in many cases by the hemorrhagic syndrome. These factors account for the high mortality and long and difficult convalescence complicated by neurologic sequelae and disseminated intravascular coagulation. In the combined infections, in distinction to purely bacterial meningoencephalitis, catarrhal symptomatology invariably preceded brain and meningeal involvement. Figures 5; references 5 (Russian).

12172/9835
CSO: 1840/2165

UDC 616.992.282-031.81

# CASE OF SYSTEMIC MUCORMYCOSIS

Moscow KLINICHESKAYA MEDITSINA in Russian No 8, Aug 85
(manuscript received 26 Nov 84) pp 145-147

[Article by V.A. Privalov, N.A. Alekseyev, K.N. Sidelman and G.I. Gurevich, General Surgery Clinic, Chelyabinsk Medical Institute; No 1 Municipal Clinical Hospital]

[Abstract] Description is provided of a case of systemic mucormycosis affecting a 20-year-old patient, 27-28 weeks pregnant. The patient was diabetic and on insulin and, two weeks prior to hospitalization on 08/19/83, had received an injection of oxacillin into the gluteus muscle for pyelonephritis. The site of oxacillin injection developed into an area of painful infiltration for which the patient was hospitalized. Extensive clinical workups and surgical management of the affected site were without effect, and the patient succumbed on 09/21/83 after intensive chemotherapy. Postmortem studies revealed histologic changes typical of mucormycosis, originating at the site of oxacillin injection and developing into a systemic disease. Although the clinical symptomatology throughout had been of systemic mucormycosis, faulty interpretation of the clinical and laboratory data had led to a misdiagnosis of ascending pyelonephritis. Figures 3; references 3 (Russian).

12172/9835
CSO: 1840/2162

MICROBIOLOGY

UDC 581.143.6:581.557

# EFFECT OF MEDIUM COMPOSITION ON GROWTH OF ASSOCIATION OF RANAX GINSENG CELLS AND CYANOBACTERIA CHLOROGLOEOPSIS FRITSCHII

Moscow VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 16: BIOLOGIYA in Russian No 1, Jan-Mar 86 (manuscript received 18 Jun 85) pp 31-36

[Article by Ye.S. Lobakova and T.G. Korzhenevskaya]

[Abstract] Continuing previous work in which they reported on synthetic association of ginseng cells and phototrophic C. fritschii, the authors here report on the effect of certain components of the Murashiga-Skuga (MS) medium on growth of C. fritschii in a monoculture and in the given association. They varied content of Na+, K+, $NH_4$+, while keeping general nitrogen content as a constant. Results showed that in the presence of $KNO_3$ and $NH_4NO_3$ and the absence of $NaNO_3$, the cyanobacteria did not grow and soon died, while elimination of $NH_4NO_3$ and its replacement with $NaNO_3$ with constant $KNO_3$ amount assured growth of the cyanobacteria. Lack of sucrose in incubating media brought death of the ginseng cells. In association with the ginseng cells without sucrose, C. fritschii showed general increase in pigmentation. Maximum increase in biomass was observed on a medium with $NaNO_3$ and 0.19% sucrose, but even without the latter the biomass grew markedly. Thus $NaNO_3$ can be substituted for $NH_4NO_3$ to provide favorable growing conditions, effective growth in association and long-term preservation of the viability of plant cells. Figures 5; references 11: 8 Russian, 3 Western.

12131/9835
CSO: 1840/2062

UDC 576.8.095.3

DESTRUCTION OF CROTONALDEHYDE BY IMMOBILIZED BACILLUS BACTERIA

Alma-Ata IZVESTIYA AKADEMII NAUK KAZAKHSKOY SSR: SERIYA BIOLOGICHESKAYA in Russian No 6, Nov-Dec 85 pp 45-48

[Article by R.M. Aliyeva, Zh.B. Tarabayeva and A.N. Ilyaletdinov, Institute of Microbiology and Virology, KaSSR Academy of Sciences, Alma-Ata]

[Abstract] Use of microorganisms to purify sewage has taken on increasing importance in recent years. The present article reports on study of adsorption of Bacillus bacteria on various carriers for subsequent use in purifying industrial sewage. Glass beads, rods of fiberglass and glass fabrics were used as carriers. Bacteria for the tests were cultivated on a medium of $(NH_4)_2HPO_4$, KCl, $MgSO_4$, $KH_2PO_4$-0.5, with traces of $FeSO_4$ and yeast autolyzate, at pH of 6.5. Changes in the aldehyde and acetylene concentrations were studied by gas-liquid chromatography. After the microorganism being tested was fixed to the carrier in a glass column, the sewage was introduced and the biomass maintained for 3 days. The medium containing 50-500 mg/l of crotonaldehyde and acetaldehyde was fed at a rate of 5 liters per day. Results show that the Bac. pumilus 153 strain brought nearly complete breakdown of the aldehydes, and thus these bacteria immobilized on a fiberglass fabric can be used for purifying sewage containing aldehydes. Industrial application of a simple version also proved successful. Figures 2; references 5: 3 Russian, 2 Western.

12131/9835
CSO: 1840/2084

UDC 616.981.718(477.61)

Q-FEVER IN VOROSHILOVGRAD OBLAST

Kiev VRACHEBNOYE DELO in Russian No 7, Jul 85 (manuscript received 17 Sep 84) pp 116-118

[Article by A.N. Tishchenko, V.T. Shygaylo, professor, A.V. Baklanova, A.D. Starik and L.I. Breslavets, Chair of Infectious Diseases, Voroshilovgrad Medical Institute]

[Abstract] Since Q-fever had previously been unreported in the Voroshilovgrad Oblast (Ukraine), diagnosis of two cases represents special interest. The cast study for one patient is presented, a 42-year-old health worker. The patient apparently contacted Q-fever by drinking unpasteurized milk. The patient presented with typical symptomatology, commencing with a headache, dry cough, catarrh, and so forth. Eventually, hepatosplenomegaly developed, and the patient was eventually diagnosed as having Q-fever on the basis of a rising (to 1:1280) CF titer. The patient was discharged 38 days after hospitalization in a satisfactory state with no evidence of subsequent recurrence.

12172/9835
CSO: 1840/2165

UDC 577.352

# MODIFICATION OF BILAYER PHOSPHOLIPID MEMBRANES BY PROPOLIS

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 6, Jun 85 (manuscript received 22 Feb 84) pp 477-481

[Article by A.Ye. Zakaryan and G.A. Pogosyan, Department of Biophysics, Yerevan State University]

[Abstract] Reconstruction of synthetic lipid bilayers can make it possible to understand the effect of many biologically active substances (BAS) on cell membranes. The present article reports on study of the usefulness of propolis (bee glue) as a modifier of various biolayer lipid membranes (BLM). The authors obtained phospholipid from cattle brains, then dried it before use in a vacuum pump and dissolved it in nonane. BLM samples were deposited on teflon, then washed with potassium chloride solution before the tests. The propolis came from mountainous regions of Soviet Georgia. Results showed the gradual increase in electrical conductivity of BLM augmented with propolis, in stair-step increments, until the membrane resistance had been reduced by a factor of $10^3$-$10^4$. At that point the BLM tended to fail, indicating that the ethanol component of the propolis contained components that reacted with the lipid bilayer itself. Boiling in water did not reduce the ability of propolis to induce conductivity. The most effective modifiers were found to be low-molecular-weight flavins or flavanols, whose nontoxic nature made them widely applicable for medicinal use. Figures 3; references 17: 9 Russian, 8 Western.

12131/9835
CSO: 1840/2088

UDC 577-37

SUPERMOLECULAR STRUCTURES OF BIOSYSTEMS

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 7, Jul 85 (manuscript received 14 May 84) pp 559-568

[Article by R.I. Mints and Ye.V. Kononenko, Ural Polytechnical Institute, Sverdlovsk]

[Abstract] The authors summarize previous research and provide new findings on biocrystallographic study of structures and means for controlling certain functions of biosystems by manipulating structures. Surface crystals may be crystalline with open or closed ends, in cylindrical or other shapes. Dislocations and related features are points of growth in such crystals; and closed surface crystals can grow only by the inclusion of new elements in the structure. Rod-like viruses may grow along linear defects and thus enter into cylindrical surface crystals, forming a new cell membrane in the process. Biological activity of the culture and the source of tissue also affect growth features. Linear defects under compression can also cause dislocations in surface crystals. Bacterial flagellas, solid or semi-solid helicoids, can carry waves of extension and compression along their cylindrical shapes. Defects in structure, such as creep, can affect trans-membrane transfer of ions including $Na^+K^+$-ATPases. The lowest energy is found in creep dislocations, which result in bulges where ions can accumulate. Liquid crystal formations in bio-objects and defects in liposomes are summarized. The authors note that liposome defects have practical significance since they are connected to the durability of liposomes in the environment. Enzymes such as phospholipase can bring changes in liposomes, and they have been shown to decompose at temperatures below the gel-liquid crystal point. The findings presented have diagnostic and biotechnological applications. References 52: 13 Russian, 39 Western.

12131/9835
CSO: 1840/2087

UDC: 547.963.32.07

CONSTRUCTION OF EXPRESSION VECTORS WITH STRONG PROMOTERS BASED ON pBR327 PLASMID

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 4, Feb 86 (manuscript received 30 Aug 85), pp 1012-1015

[Article by K.D. Kuznedelov, M.I. Rivkin, V.P. Kumarev and V.V. Kravchenko, Institute of Cytology and Genetics, Siberian Department, USSR Academy of Sciences, Novosibirsk; All-Union Scientific Research Institute of Molecular Biology, Koltsovo, Novosibirsk Oblast]

[Abstract] A study was undertaken of the expression of a model semisynthetic β-glactosidase gene of E. coli under the control of 2 strong promoters

isolated from the DNA of the bacteriophage λ cI857 and under the control of the repressor cI. The cI-$p_R$-$p_L$-lacZ block was cloned in pBR327 plasmid in two orientations and expression of the lacZ gene was studied. The expression vectors pZblal and pZtet3 were found to be stable and produce more effective expression of the laxZ gene than that observed for similar vector systems with orientation of the promoters in the direction of the tet gene. The orientation of strong promoters in the direction of the bla gene is preferable since it almost doubles the synthesis of β-galactosidase. Figures 2; references 11: 4 Russian, 7 Western.

6508/9835
CSO: 1840/360

NIEMR

UDC 612.82:615.849.11]-06:577.1-029.9

# MAGNETIC FIELD EFFECTS ON BRAIN MONOAMINE OXIDASE ACTIVITY

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 3, Mar 85
(manuscript received 5 May 85) pp 43-45

[Article by V.M. Borets, V.Yu. Ostrovskiy, A.A. Bankovskiy and T.F. Dudinskaya, Second Chair of Internal Diseases, Grodno Medical Institute; Department of Metabolic Regulation, Belorussian SSR Academy of Sciences]

[Abstract] Invview of the increasing use of magnetotherapy, studies were conducted on the effects of 35 mTesla magnetic fields on monoamine oxidase activity in the rat brain. Under in vitro conditions a constant magnetic field in the continuous mode was most effective in inhibiting deamination of dopamine following 1 min exposure, while in vivo studies with 8 min or 10 day exposures showed that inhibition was obtained only with a variable field in the continuous mode. However, inhibition of dopamine deamination was only evident within the first 24 h after exposure was terminated. In addition, in none of the cases was norepinephrine deamination inhibited. The effects of the magnetic fields were, therefore, transient and selective with the CNS as the target system. References 9 (Russian).

12172/9835
CSO: 1840/2118

UDC 615.9:668.812.16

## TOXICOLOGIC EVALUATION OF MELAMINE CYANURATE, MELAMINE AND CYANURIC ACID

Yerevan ZHURNAL EKSPERIMENTALNOY I KHIMICHESKOY MEDITSINY in Russian Vol 25, No 4, Apr 85 (manuscript received 4 Jun 84) pp 345-349

[Article by E.A. Babayan and A.V. Aleksandryan, Scientific Research Institute of General Hygiene and Occupational Diseases imeni N.B. Akopyan]

[Abstract] Toxicity of melamine cyanurate (MC), melamine (M) and cyanuric acid (CA) was studied on mice and rats after inhalational, oral and cutaneous single and multiple administration of the agents. On oral administration, MC was shown to be a moderately toxic agent while M and CA were weakly toxic. All of them exhibited cumulative characteristics. On the basis of experimental data, the 27.64 $mg/m^3$ dose of MC was considered toxic, 2.68 $mg/m^3$--a threshold and 1.15 $mg/m^3$--inactive in chronic exposures. The maximum permissible air dose was established at 0.5 $mg/m^3$ (aerosol, safety class--II). References 5: 3 Russian, 2 Western.

7813/9835
CSO: 1840/2061

UDC 617-089.5+615.357.37](048.8)

## INSULIN IN ANESTHESIOLOGY AND RESUSCITATION

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 5, Sep-Oct 85 pp 70-78

[Article by I.A. Kozlov and A.V. Meshcheryakov, Cardioanesthesiology Section, Department of Anesthesiology, All-Union Scientific Surgical Center, USSR Academy of Medical Sciences, Moscow]

[Abstract] Essentially Western literature on insulin is reviewed, with emphasis on insulin's effects and metabolism in situations other than diabetic control. Insulin secretion has been shown to be diminished in a number of surgical situations, including heart surgery, and, in general, whenever wounds and trauma are sustained. Similar inhibition of insulin

release has been noted in a number of infectious processes. In addition, a further complication from the metabolic viewpoint that attends surgery is the fact that a number of anesthetics have been shown also to have an adverse impact on the secretion of this hormone. As a result, a number of publications have appeared in recent years dealing with the use of insulin as an anabolic agent in the post-operative or post-traumatic period. The literature indicates that clinical research on the role of insulin and its use in correcting metabolic complications in surgery is on the increase, and that insulin will have an even greater impact in the future as a therapeutic agent. Figures 1; references 132: 27 Russian, 105 Western.

12172/9835
CSO: 1840/2117

## LENINGRAD SOCIETY OF ANESTHESIOLOGISTS AND REANIMATOLOGISTS. MINUTES OF 286th MEETING

Leningrad VESTNIK KHIRURGII in Russian No 7, Jul 85 (manuscript received 6 Mar 85) pp 149-150

[Article by G.L. Kotomina, candidate offmedical sciences]

[Abstract] This meeting was held 30 Jan 85, I.A. Frid as chairman, F.V. Voloshina as secretary. V.V. Babichenko, I.B. Rozin, V.I. Sipchenko and L.I. Mitropolskaya demonstrated successful long-lasting anesthesia during reconstructive operations based on drop-wise administration of ketamine (10-12 hours of anesthesia). A.N. Kondratyev, V.P. Rayevskiy and G.V. Fradkova presented a paper on functional regulation system for liquid state of blood and its coagulation in patients with brain tumors during surgery under conditions of neuroleptanalgesis. V.Ya. Shneyderman discussed changes in enzymatic function of liver under influence of necrosis evoked by halogen-containing anesthetic agents. Hepatotoxic activity of anesthetic agents observed on 314 patients was analyzed.

7813/9835
CSO: 1840/2146

UDC 616-617-089.5:615.212.7:547.943]032:617.829]-07:616.831.959-091

TISSUE TOLERANCE OF MORPHINE AFTER EPIDURAL INJECTION

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 6, Nov-Dec 85 (manuscript received 13 Feb 85) pp 52-54

[Article by A.A. Semenikhin and Yu.V. Kaminskiy, Department of Pathological Anatomy (head-professor Yu.V. Kaminskiy), Department of Anesthesiology and Reanimatology (head-docent A.A. Semenikhin), Vladivostok Medical Institute]

[Abstract] Morphological study of the epidural space of 15 rabbits and 15 dogs after morphine injection (0.1-0.2 mg/kg) and study of autopsy tissue from the epidural space, the spinal cord and spinal cord roots of 6 persons given morphine (0.1 mg/kg in a 10 ml physiological solution) in the last 10 days of life are described and discussed. Histological study revealed no significant changes in epidural space morphology. Epidural space tissue in the immediate vicinity of morphine injection underwent slight changes due to tissue reaction to mechanical irritation. Study of the spinal cord roots showed uneven plethora in some sections of the microcirculatory stream. There was no apparent dependence of the morphological picture on the morphine dosage. No structural changes in the epidural space were apparent in autopsy material. Figures 3; references 9: 4 Russian; 5 Western.

2791/9835
CSO: 1840/2137

UDC 617.55-06:616-056.257]-053.9-089.5

SELECTION OF METHOD OF ANESTHESIA IN ELDERLY AND SENILE OBESE PATIENTS DURING ABDOMINAL SURGERY

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 6, Nov-Dec 85 pp 54-57

[Article by L.P. Chepkiy, G.I. Sofiyenko and A.I. Kozhan, Department of Anesthesiology and Reanimatology (head-professor L.P. Chepkiy, doctor of medical sciences), Kiev Medical Institute]

[Abstract] A study of 227 obese persons (139 under 60 years of age and 88 persons over 60 years of age) who underwent surgery under endotracheal anesthesia, epidural anesthesia or combinations of them during gastro-intestinal surgery is described and discussed. The obese persons experienced pronounced disturbances of basic vital functions, especially of pulmonary ventilation and gas exchange. Some elderly and senile obese patients experienced disturbances of hemodynamics, arterial hypertension and reduced cardiac output. Prolonged epidural anesthesia provided effective analgesia, early restoration of peristalsis, improved pulmonary ventilation and gas exchange and reduced bronchopulmonary complications, especially in the elderly obese patients. References 5: 1 Russian; 4 Western.

2791/9835
CSO: 1840/2137

UDC 617-089:57.089.2]-089.5-07-616.151.5

STATE OF HEMOSTASIS SYSTEM IN PATIENTS DURING MICROSURGERY UNDER GENERAL COMBINED ANESTHESIA

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 6, Nov-Dec 85 (manuscript received 11 Apr 85) pp 62-66

[Article by O.M. Mikhaylova, V.A. Svetlov, N.O. Milanov, L.A. Smirnova and A.V. Gnezdilov, VNTsKh [All-Union Surgery Research Center] (director-B.V. Petrovskiy), USSR Academy of Medical Sciences, Moscow]

[Abstract] Hemostasis indicators were analyzed in 50 persons (ranging in age from 15-40 years) undergoing prolonged microsurgery under combined general anesthesia. Signs of hypocoagulation appeared from 3-4 hours after beginning of surgery and progressed as surgery was extended. Hypocoagulation and reduction of some blood coagulation and fibrinolysis factors appeared in the 7th-8th hour of surgery. This was assumed to be due to the infusion therapy volume and procedure. It posed no threat to the patient's life. Use of anti-aggregants and small doses of heparin were recommended when hemostasis changes might cause thrombosis of microvascular anastomoses. References 21: 20 Russian; 1 Western.

2791/9835
CSO: 1840/2137

UDC 617.542-089.168-06:616.8-009.7-085.211-032:611.829]07:616.24-008

EFFECT OF POST-OPERATIVE EPIDURAL ANALGESIA BY MORPHINE ON MECHANICS OF RESPIRATION AND PULMONARY GAS EXCHANGE IN PATIENTS UNDERGOING SURGERY OF ORGANS OF THORACIC CAVITY

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 6, Nov-Dec 85 pp 67-70

[Article by A.M. Smakov, Department of General Surgery and Anesthesiology (head-professor A.G. Roslyakov), Khabarovsk Medical Institute]

[Abstract] Effectiveness of post-surgery epidural analgesia by morphine was assessed after use on 107 patients (ranging in age from 16-60 years), including 42 percent who underwent closed mitral commissuratomy and 36 percent who underwent partial lung resection to treat chronic purulent diseases and tumors. Surgery was performed under general combined anesthesia with total curarization and artificial pulmonary ventilation. Epidural analgesia by morphine began after extubation and appearance of pains by introduction of 4-5 mg of morphine diluted in 10 ml of a 0.9 percent solution of sodium chloride via a catheter placed in the mid-thoracic section of the epidural space. Patients (204), anesthesized by intramuscular injection of promedol, made up the control group. The most suitable respiratory

test for monitoring effectiveness of analgesia of such patients was determined. Epidural analgesia by morphine eliminated excruciating post-operative pain and promoted normalization of pulmonary respiration. Use of morphine was greatly superior to use of promedol after intra-thoracic surgery. Recording of the flow-volume curve of forced expiration provided the best method of monitoring post-surgical peridural analgesia by morphine. References 20: 14 Russian, 6 Western.

2791/9835
CSO: 1840/2137

## ELECTROCARDIOGRAPHIC CHANGES AND TREATMENT OF CARDIOVASCULAR DISEASES UNDER MIDDLE-ALPINE CONDITIONS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 1, Jan 86 pp 51-53

[Article by A.K. Izmukhanov, I.V. Zubanova and N.G. Nigay, Sanatorium "Alatau" 4TH Main Administration (chief physician, A.K. Baygenzhin), Kazakh Scientific Research Institute of Chemical and Experimental Surgery imeni A.N. Syzanov, a Alma-Ata]

[Abstract] Treatment of persons with cardiovascular diseases, at the Alatua sanatorium (situated 1340 meters above sea level), is described and discussed. From 1983 to 1985, patients included 250 persons with ischemic heart disease and atherosclerotic cardiosclerosis, 242 with ischemic heart disease, stenocardia and FK-1-P and 154 persons with hypertension I or II stage. Treatment at the sanatorium included climatotherapy, physiotherapy, balneotherapy, nutritional therapy, massage and physical culture. EKG-changes and clinical findings and medication used were described and discussed for each group. A seizure of paroxysmal tachycardia in 1 patient with ischemic heart disease was cut off by use of isoptine intravenously and nonocainamide intramuscularly. The complex therapy employed produced good results in 98.8 percent of the cases.

2791/9835
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UDC: 591.169

## MYOSATELLITES IN REGENERATION OF TRANSPLANTED EXTREMITY MUSCLES IN AXOLOTLS

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 4, Feb 86 (manuscript received 5 Aug 85) pp 973-975

[Article by S.Ya. Tuchkova, Institute of Developmental Biology imeni N.K. Koltsov, USSR Academy of Sciences, Moscow]

[Abstract] The formation of a regeneration extremity blastoma in amphibians has been shown to occur by differentiation of tissue elements in the remainder of the organ. Mature muscle tissue contains reserve elements

in the remainder of the organ. Mature muscle tissue contains reserve elements called myosatellites which are activated following various traumas to the muscle tissue. This study utilized a model of a transplanted extremity muscle in an animal with the capability of epimorphous regeneration of extremities. The axolotl Ambistoma mexicanum was used in the experiments, in which transplanted and intact muscles were examined by optical and electron microscopes. Results over 10 to 15 days following transplantation indicated that under the experimental conditions the source of myoblasts was the previously existing myosatellite cells which are activated and take on the characteristics of myogenous cells during the process. In the intact muscles, these myosatellite cells represent 3.2-4% of the nuclear elements of the muscle fibers. References 13: 2 Russian, 11 Western.

6508/9835
CSO: 1840/360

INFLUENCE OF SYMPATHETIC NERVOUS SYSTEM OF ANIMALS ON ERYTHROPOIESIS AND CELL COMPOSITION OF BLOOD UNDER HIGH ALTITUDE CONDITIONS

Frunze ZDRAVOOKHRANENIYA KIRGIZII in Russian No 5, Sep-Oct 85 pp 15-17

[Article by A.Yu. Tilis and E.I. Isayev, Kirghiz State Medical Institute, Department of Pathophysiology]

[Abstract] Considering the great significance of sympathetic innervation in adaptation to high altitude hypoxia, the authors studied the participation of the sympathetic nervous system in the process of blood regeneration in response to blood loss under high altitude conditions. Studies were performed at 3200 m altitude, five series of experiments with 42 adult chinchilla rabbits. The superior cervical sympathetic ganglia and cervical sympathetic nerves were removed from some of the animals under ether narcosis. The animals were then used to study erythropoesis in the process of adaption to the hypoxic factor or the response to loss of blood equal to 2% of body mass. In a controlled group of animals, the upper cervical ganglia were exposed under ether narcosis but not extirpated. The number of erythrocytes and reticulocytes was determined for all animals, along with the quantity of hemoglobin, color index and hematocrit. The erythropoietic series was studied in bone-marrow specimens and the leuko-erythroblastic ratio was determined. Results of the studies indicated that stimulation of hematopoiesis under high altitude hypoxia is independent of the regulating influence of the sympathetic nervous system. However, removal of the superior cervical sympathetic ganglia and cervical nerves under the conditions present in the city of Frunze results in the development of "neurogenous" anemia and some inhibition of erythropoiesis.

6508/9835
CSO: 1840/2021

# CAUSES OF ACTIVE, PASSIVE ATTITUDES OF SAILORS TOWARD PHYSICAL ACTIVITY

Moscow TEORIYA I PRAKTIKA FIZICHESKOY KULTURY in Russian No 1, Jan 86 pp 37-38

[Article by S. G. Tereshchenko, candidate of pedagogical sciences, Military Twice Recipient of the Red Banner Institute of Physical Culture]

[Text] Practical experience attests to the fact that despite significant improvements in opportunities to participate in physical activity on ships of the maritime fleet, a large percentage of the crew continues to demonstrate a passive attitude toward it. In order to substantiate ways in which to develop an active positive attitude toward physical training it was important to study motives-incentives (activeness) and motives-disincentives (passivity) because it is within them that the individual meaning of certain of man's activities are revealed (A. N. Leontyev, 1977). With this goal in mind we used the questionnaire method to conduct a survey of crews (over 200 persons) ages 21-36 living under different conditions at sea.

The survey results showed that the number of people engaged in various forms of physical activity (Table 1) fluctuates between 11 and 23 percent; moreover, under at-sea conditions this number increases insignificantly.

The survey results showed that most of those surveyed (94.8 percent of those who exercise and 72 percent of those who do not) understand the benefits of exercise, emphasizing its positive effect on increasing work efficiency (62.7 percent of those surveyed) and on improvements in health (40.4 percent). In the practice of the physical training of the population there are also cases in which many people are well-informed about the benefits of exercise but do not exercise systematically as long as they do not experience its positive effects in themselves, i. e., until a "subjective model of physical sensation" is developed.

The data we obtained did not demonstrate a clear relationship between the number of crewmen who exercise and improved conditions for exercise on ships (Table 2). This attests to the fact that the conditions needed for physical activity and sports create an attitude toward them only in a general sense; these attitudes are made specific through the mechanism of personality characteristics. In connection with this the study of social motivation is an

Table 1

| Form of physical activity | On vessels, with a point evaluation of conditions | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | |
| | A* | B | A | B | A | B | A | B |
| Morning workout | 6.2 | 6.8 | 6.6 | 6.7 | 7.5 | 7.8 | 4.4 | 4.0 |
| Engaging in sports | 0.4 | -- | -- | -- | 0.8 | 0.8 | 1.2 | 2.4 |
| Organized physical exercise | 4.6 | -- | 3.8 | -- | 7.4 | -- | 3.8 | 2.8 |
| Individual physical training | 4.0 | 6.8 | 2.4 | 6.8 | 7.0 | 12.6 | 1.6 | 4.0 |
| Physical activity during duty | -- | 2.0 | -- | 0.6 | -- | 1.8 | -- | 2.8 |
| Total | 15.2 | 15.6 | 12.8 | 14.1 | 22.7 | 23.0 | 11.0 | 16.9 |

*A--under shore conditions, before setting off to sea; B--at sea.

Table 2

| No | Motivation | Exercise conditions in points | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1 | Improving general physical fitness | 48.5 | 37.1 | 36.3 | 37.5 |
| 2 | Improving basic physical abilities (endurance, strength, flexibility, etc.) | 8.4 | 17.1 | 18.2 | 12.5 |
| 3 | Achievement of good physical development and good body build | 45.8 | 20.0 | 9.1 | 15.6 |
| 4 | Improving (or learning) movement innovations and skills | -- | 5.7 | -- | 6.3 |
| 5 | Health maintenance | -- | 18.6 | -- | 15.7 |
| 6 | Maintaining work efficiency at a high level | -- | 11.5 | 9.1 | 12.5 |
| 7 | Opportunity to relieve stress | -- | -- | 6.1 | -- |
| 8 | For the purpose of active relaxation | -- | -- | 9.1 | -- |

essential factor which determines the relationship between the crew and active involvement in physical activity and sports.

The data show a considerable "overbalance" of the first four motives in all contingents. An improvement in general physical fitness and basic physical abilities, the improvement of health and body building--all of this is achieved with the aid of physical exercise and can be called its main function. It is possible to develop qualities of a strong will and character and to test oneself in spheres other than exercise as well; for this reason most of those surveyed did not evaluate physical activity highly in this area. We were alerted by the absence of the attachment of importance to the motive of social contact and development of resistance to unfavorable aspects of

Table 3

Basic Motives-Disincentives of a Passive Attitude Toward Physical Activity (answers in %)

| Motivation | Exercise conditions in points 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Not enough time* | 36.4 | 32.4 | 55.5 | 39.3 |
| No desire | 54.5 | 14.3 | 11.2 | 32.1 |
| Absence of sports facilities and trainers | 9.8 | 42.8 | 27.8 | 10.7 |
| Specifics of microclimate | 9.1 | -- | -- | 10.7 |
| Absence of methodologies for physical training | -- | 4.8 | 5.5 | 3.6 |
| Does not see the benefits of exercise | -- | -- | -- | 3.6 |

*Research has shown that crews have ample time, including free time.

professional development. From the practical point of view these data remind us of the necessity to introduce collective (command) means of physical training and to strengthen propoganda concerning its significance in the development of resistance toward seasickness, high temperatures and so forth.

Motives-disincentives used to describe a passive attitude toward engaging in physical activity are presented in Table 3.

The lesser significance of motives-disincentives such as the absence of sports facilities and trainers and the specific characteristics of microclimate for ship crews, which have minimal conditions for engaging in physical training and sports, once again confirms that these motives-disincentives contribute only generally to the attitude.

In the opinion of those surveyed, the following are essential in order to improve the system of physical education and of organizing regular workouts: setting aside time in the daily schedule for engaging in physical activity and sports (up to 71.4 percent), improving sports facilities (up to 54.5 percent), developing integrated physical exercises and a methodology for utilizing them (up to 66.5 percent), paying more attention to organized forms of implementing exercise under the leadership of sports specialists (up to 27.3 percent), strengthening educational work in developing a positive attitude toward physical activity (up to 12.2 percent), improving microclimate conditions (up to 10 percent) and organizing systematic medical controls (up to 6 percent).

The results of the completed study enable us to make a number of practical recommendations which will contribute to increasing the activeness of sailors as regards engaging in physical training.

First of all, it is essential to improve the system of agitation-propoganda influence, to give primary attention to finding opportunities for physical activity for the purpose of improving the health of the ship's crews, its ability to work and its social activeness. Secondly, based on the motives

studied, more attention should be given to the organization of forms of mass physical activity such as groups for physical exercise, health and medical physical training and weight lifting.



8228
CSO: 1840/2028

OPHTHALMOLOGIST INTERVIEWED ABOUT MEDICAL EQUIPMENT SHORTAGE

Moscow LITERATURNAYA GAZETA in Russian 26 Feb 86 p 12

[Interview with S. Fedorov, director of the Moscow Scientific Research Institute of Eye Microsurgery, corresponding member of the USSR Academy of Medical Sciences, by N. Bianki, correspondent of LITERATURNAYA GAZETA: "It Is Not With Skill Alone"]

[Text] Letter to the Editor

... Our ophthalmological surgeons are performing miraculous operations. But I have had occasion more than once to hear them complain of shortages and poor quality of various equipment and devices. And I am not referring to some provincial rayon hospitals, rather, to the largest medical centers. What is the explanation for this? What is being done to remedy the situation? [signed] V. Kononeko, Leningrad.

[Question] Svyatoslav Nikolayevich, does it not appear to you that this reader is exaggerating? It may be that not all of the ophthalmological offices are outfitted, as they say, in the latest fashion, but major centers, such as your institute, should not, it appears, complain of any serious flaws in being supplied with equipment?

[Answer] Unfortunately, you are mistaken. There are no good surgeons without modern equipment. And in this area we do indeed have many problems. It is known that medical equipment is very expensive. However, sometimes we do not have enough of even the simplest and inexpensive devices and equipment.

[Question] I know that you have been asking the medical industry, for at least 20 years, to manufacture special needles for us. How does that stand today?

[Answer] Unfortunately, the matter has not budged. After all, a needle is not some kind of extremely complex computer, it is just a small piece of metal that is 250 microns wide. And, since domestically manufactured needles are still of a poor quality, we have to purchase them on the foreign exchange.

[Question] How do you explain the fact that such a long time is required to set up production of such a simple instrument?

[Answer] Industry is quite capable of setting up the manufacture of these needles. But we do not have either suitable plants among those that service medicine or adequate capacities, but mainly, for some reason there is no interest in high-quality medical equipment. Strange as it seems, medical production is not included even in the plans of plants that could manufacture excellent instruments and equipment. These enterprises produce consumer goods worth many billions of rubles; however, our equipment is not included in such a section of the plan. Moreover, if a plant that manufactures medical equipment does not fulfill its plan, the first thing it removes from production is expressly medical equipment.

The quality of equipment also leaves much to be desired. The microscopes, ophthalmoscopes, ophthalmometers and other instruments produced in our country are considerably poorer in quality than analogous foreign equipment. The problem is that we, the so-called consumers, do not have the right to refuse this equipment, even if it is of poor quality. In 32 years that I have worked in medicine, not a single representative from plants that produce medical equipment has visited either our polyclinic or operating room. One asks how are they to know the quality needed or what it is exactly that we require?

[Question] What do you think must be done to change the situation?

[Answer] The situation could be changed by founding an institute of so-called medical representatives at these plants. Their duties would include rejection of poor equipment and to see to it that the equipment would be manufactured only on a par with international standards. Is it conceivable that wires could break in equipment, that contacts fall off or that lamps would burn out? And, furthermore, there are no spare parts. And I am compelled to adapt somehow, to make repairs under primitive conditions. In general, just imagine if the equipment falls apart during an operation! For example, the anesthesia machine stops, the patient stops breathing.... In essence, we are trusting utterly unreliable equipment with human life.

As for the prospects.... I, as the director of a major institution, have no idea about what the medical industry will be putting out in 5 years. I have no idea about whether that equipment will be suitable for the operations that I am performing now and plan to perform in the future. There is a wall of lack of understanding between us, the medical and industrial people. They do what is easier and more profitable....

Postscript from the science department of LITERATURNAYA GAZETA: "What is being done to remedy the situation with ophthalmological equipment?" This is the question we should like to resubmit to the USSR Ministry of Health and USSR Ministry of Instrument Making.

10657
CSO: 1840/1191

BRIEF

NOCTURNAL NOISE POLLUTION--Commentary by German Nikolayevich Krutikov, chief health inspector [physician] of Moscow. The article does not raise a new problem, but unfortunately a very burning issue. Nighttime is for sleeping, nighttime is not for listening to the hum of electrical distribution boxes, compressors, pumps, clang of aluminum and conversations of railroad workers. There is a standard for urban noise level at night--no more than 30 decibels! For the sake of comparison, an ordinary telephone conversation is 60-80 decibels, and 30 would be a whisper. Of course, you cannot escape unexpected noises in Moscow. However, what we do not notice in the daytime has a far from benign sound at night.... The Department of Sanitary Acoustics is the most active sector of work of the municipal sanitary service. It is equipped with the latest instruments. We identify the loud points, for example, Beskudnikovo Station, the region of Putevoy thoroughfare which makes noises that are no "worse" than those mentioned in the article by Khovrin. Industrial enterprises must respond to both items in the newspapers and our persistent recommendations. Punitive sanctions are seldom used for noise in houses. Yet it was not so long ago that Mosgorispolkom adopted a decree and expanded the rights of the militia with regard to control of nighttime noise. It now remains to implement them. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 24 Apr 86 p 4] 10657

CSO: 1840/1191

UDC 616.89-085-036.867

WORK PLACEMENT FOLLOWING TERMINATION OF EMPLOYMENT FOR REASONS OF HEALTH

Moscow ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S.S. KORSAKOVA in Russian Vol 86, No 3, Mar 86 pp 463-464

[Article by A.I. Rudyakov, Moscow]

[Abstract] A brief description is provided of measures taken in Moscow to alleviate the mental, financial and social burden following loss of work for reasons of mental health. The case of each individual is carefully analyzed--whether the problem stems from resignation or dismissal--and appropriate recommendations are made to workers' union and managerial officials regarding any mitigating circumstances. In many cases it has been possible to reverse unjustified dismissals and secure against lost wages. The success of this approach, which in itself has considerable beneficial effects on the mental state of the affected workers, rests largely on the close cooperation and understanding that prevails among the involved psychiatrists, judicial authorities, the collegium of lawyers, and the public health officials.

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CSO: 1840/2158

UDC 614.1:312.6

HEALTH AND DEMOGRAPHY IN USSR

Moscow ZDRAVOOKHRANENNIYE ROSSIYSKOY FEDERATSII in Russian No 10, Oct 85 (manuscript received 14 Mar 85) pp 12-17

[Article by D.D. Venediktov, All-Union Scientific Research Institute of Medical and Medical Technology Information, Moscow]

[Abstract] The notable book by M.S. Bednyy, Demograficheskiye Faktory Zdorovya [Demographic Health Factors], Moscow, 1984, deals with the dynamics and evaluation of public health and provides a bridge between

sociology and medicine. The five chapters in this book cover various aspects of medical demography, deriving factual information from all over the USSR, but concentrating on, naturally, the RSFSR. The author covers the fluctuations in the birth rate in the USSR and the social and political factors that affect it, the significance that it has for the average age of the population, and the disparity in the sex ratio for the adult population as it affects the birth rate. The author points out that medical statistics based on hospital or clinic visits alone are rather unreliable indicators of overall morbidity patterns, especially in the case of the older segment of the population. Many other problems are raised by the author, including the need for more extensive use of demography in monitoring and planning public health programs. However, the major contribution of this book is that it serves as a major stimulus for regarding medical demography as a specialty in its own right.

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UDC 616-036.12-06-055.2:313.13

CHRONIC DISEASE COMBINATIONS IN WORKING AGE WOMEN

Moscow ZDRAVOOKHRANENNIYE ROSSIYSKOY FEDERATSII in Russian No 10, Oct 85 (manuscript received 26 Mar 85) pp 26-28

[Article by T.M. Maksimova, L.I. Murakhovskaya, A.G. Marchenko and Ye.G. Shekhter, All-Union Scientific Research Institute of Social Hygiene and Public Health Administration imeni N.A. Semashko, USSR Ministry of Health, Moscow]

[Abstract] Medical screening of 30-50 year old working women in Mogilev and Irkutsk revealed a large number of cases with a combination of two or more chronic diseases. The breakdown of the figures showed that 36.2% of the women had 3 or 4 diseases, and 16.5% had 5 or more. Diabetes mellitus, for example, was encountered as a sole disorder in only 1.9% of the cases. Chronic gastritis, chronic cholecystitis, coronary heart disease, chronic bronchitis, skin diseases and neurotic conditions were found as the sole pathology in 5.8% of the women. In general, however, these conditions existed in combination with 4 or more other diseases. Some 10-14% of the cases, consisting of bronchial asthma, refraction anomalies, rheumatism, were without accompanying diseases. These findings point to the need for a high index of suspicion on the part of the attending physicians for multiple diseases in order to assure adequate health care.

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UDC 616.891.-036.4-084

CLINICAL AND ADMINISTRATIVE ASPECTS OF EARLY DIAGNOSIS AND PREVENTION OF BORDERLINE NEUROPSYCHIATRIC DISORDERS

Moscow ZDRAVOOKHRANENNIYE ROSSIYSKOY FEDERATSII in Russian No 10, Oct 85 (manuscript received 22 Jan 85) pp 28-31

[Article by V.Ya. Semke and B.S. Polozhiy, Tomsk Branch, All-Union Scientific Center of Mental Health, USSR Academy of Medical Sciences]

[Abstract] For more efficient handling of neuropsychiatric patients two new administrative forms of services have been created, represented by the Oblast (Kray) Center for Boderline States and the Center for Mental Health at Large Industrial Enterprises. These centers encompass the entire spectrum of diagnostic and preventive expertise and have the facilities for short-term hospitalization. The treatment modalities, in addition to psychotherapy, include reflexotherapy, psychopharmacologic agents, diet therapy, etc. Experience with workers showing borderline neuropsychiatric disorders has shown that the combination of the various therapeutic approaches led to a cure rate of 36.2%, and clinical improvements in 56% of the patients. Lack of change was noted in the clinical condition of 6.4% of the patients, and further deterioration was observed in 1.4% of the subjects. In terms of industrial productivity a full 56.5% of the patients returned to full-time work, while 35% presented with almost complete restoration of capacity for work. In only 8.5% of the subjects was adaptability to the work environment deemed to be unsatisfactory. These new services for workers with borderline disorders were, therefore, demonstrated to be an effective means of tackling an important mental health problem.

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UDC 616-036.868

WORK ASSIGNMENT OF SICK PERSONS IN INDUSTRIAL ENTERPRISES

Moscow ZDRAVOOKHRANENNIYE ROSSIYSKOY FEDERATSII in Russian No 10, Oct 85 (manuscript received 18 Mar 85) pp 37-39

[Article by V.P. Pavlov, Medical-Sanitary Unit [Med San Chast], Cheboksary Electrical Apparatus Factory]

[Abstract] An analysis was conducted on the factors determining work assignment of persons with illnesses at the Cheboksary Electrical Apparatus Factory in the period 1970-1980. The data showed that the participation and cooperation of the district and occupational physicians is a prerequisite for proper job selection on medical grounds, and that

the effectiveness of appropriate placement can be evaluated from work incapacity data before and after the change in work. In the cohort under analysis the incidence in morbidity with loss of work time decreased by 33.9% in comparison with the previous year before the change in work, while the number of actually lost workdays fell by 23.8%. In terms of individual disease category the data were even more telling. Thus, the incidence of gastrointestinal diseases fell by 52.8%, of psychiatric disorders by 45.5%, of neural and sensory problems by 42.9%, of dermatological problems by 30%, and of circulatory disorders by 24.6%. It is evident that medically substantiated job placement can and does have a significant socioeconomic effect.

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CSO: 1840/2141

UDC 616-084.3(47+57)(049.32)

MASS HEALTH SCREENING IN USSR: STATUS AND PROSPECTS

Moscow ZDRAVOOKHRANENNIYE ROSSIYSKOY FEDERATSII in Russian No 10, Oct 85 pp 42-43

[Review by I.V. Polyakov and L.V. Kochorova, Leningrad, of book by G.A. Novgorodtsev, G.Z. Demchenkova and M.L. Polonskiy, "Mass Screening in USSR: Status and Perspectives," DISPANSERIZATSIYA NASELENIYAV SSSR: SOSTOYANIYE I PERSPEKTIVY, 2nd rev. and supplemented edition, Moscow, Meditsina, 1984, 336 pp]

[Abstract] The present book represents an expansion and an update of the previous edition, supplemented with newer examples, and treats of mass screening as a holistic concept. The book has four chapters which cover the entire Soviet mass screening program. This new approach to health is characterized by reorientation from the concept of dealing exclusively with the sick to the concept of health maintenance and disease prevention. In this respect the local outpatient polyclinics have become the cornerstone of the Soviet health system, and are charged with a major role in making the mass screening program a success. Although the authors do not provide a bibliography to support their many conclusions, the book remains a respected contribution to Soviet public health.

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CSO: 1840/2141

UDC 616.1-084

HEALTH ATTITUDES AMONG MEN AND WOMEN IN PREVENTION STUDY

Moscow TERAPEVTICHESKIY ARKHIV in Russian Vol 57, No 11, Nov 85
(manuscript received 18 Sep 84) pp 91-94

[Article by A. Goshtautas, V. Virbalene and I. Misyavichene, Institute of Cardiovascular Physiology and Pathology and the Central Scientific Research Laboratory, Kaunas Medical Institute]

[Abstract] A study was conducted on health attitudes among 3918 men and an equal number of women in Kaunas, as part of a study on the prevention of coronary heat disease and other noninfectious chronic conditions. Analysis of the data provided on questionnaires by the 25 to 69 year old respondents showed marked attitudinal differences between the sexes. The more obvious differences included such observations as attitudes to prevention, with women being much more dubious about the effectiveness of preventive measures and therapy. However, women were found to be much more likely than men to seek serious medical attention beyond just a cursory physical examination, and are much more likely than men to change their habits to preserve or improve health, including dietary change and increasing their physical activity. These observations on the attitudinal differences toward health and preventive medicine indicate that fundamentally different approaches will have to be taken to men and women in planning any health program, including mass screening. References 3 (Russian).

12172/9835
CSO: 1840/2121

UDC 616.12-005.4-036:3-036.2(475.1-21/.22)

COMPARATIVE ANALYSIS OF CORONARY HEAT DISEASE RISK FACTORS IN RURAL AND URBAN POPULATIONS: EPIDEMIOLOGIC STUDY ON 40-59 YEAR OLD MEN AND WOMEN IN URGENCH RAYON, UZBEK SSR

Moscow TERAPEVTICHESKIY ARKHIV in Russian Vol 57, No 11, Nov 85
(manuscript received 21 Jan 85) pp 55-59

[Article by A.Yu. Tursunov, A.K. Khadzhiyev, R.K. Fazylova and G.S. Zhukovskiy, Andizhan Medical Institute imeni M.I. Kalinin]

[Abstract] An epidemiologic study was conducted on a total of 15,280 40-59 year old men and women in Urgench and adjacent villages to determine the prevalence of some common coronary heat disease risk factors in rural and urban populations of Uzbekistan. In general, all of the risk factors were higher for the urban males than for rural males. The incidence of hypertension was 2.5-fold greater (20.3 vs. 8.8%), hypercholesteremia 3-fold greater (9.9 vs. 3.2%), obesity was 3-fold greater (9.7 vs. 3.3%), and hypertriglyceridemia was 1.5-fold greater (9.8 vs. 5.5%). In addition,

hyperuricemia was 2.5-fold greater in the urban than in the rural males (10.0 vs. 3.9%). A similar pattern prevailed for the urban and rural women, with the incidence of hypertension 2-fold greater in the former (17.6 vs. 8.1%), obesity more than 3-fold gerater (10.1 vs. 3.1%), hypertriglyceridemia 2-fold greater (9.9 vs. 4.8%), and hypercholesteremia 3.5-fold greater (9.9 vs. 2.7%). The differences between the rural and urban population were basically ascribed to a higher fat intake in the latter population, including that of saturated fats. The high incidence of hyperuricemia in the urban dwellers may possibly be related to a higher protein intake. These findings point to a distinctly higher risk of coronary heart disease in the urban population in Urgench than in the surrounding rural areas. References 5 (Russian).

12172/9835
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UDC 061.22:614.2

ROLE OF SCIENTIFIC MEDICAL SOCIETIES IN RESOLUTION OF PUBLIC HEALTH PROBLEMS

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 8, Aug 85 pp 72-73

[Article by professors I.N. Usov, chairman, and V.I. Savich, executive secretary, Scientific Council of Medical Societies, Belorussian SSR Ministry of Health]

[Abstract] An examination is provided of the role and responsibilities of scientific medical societies with regard to public health, particularly as this affects Belorussia. At the present time there 36 scientific medical societies in Belorussia, with a total membership of more than 30,000 physicians, medical scientists and pharmacists. Each society holds 6 to 10 plenary sessions a year and, in addition, the societies hold a number of general conferences. In 1984, for example, 4 such general conferences were held. One point of difficulty and disappointment centers around the fact that some societies are invariably later in providing information on the proceedings of such meetings to the All-Union Information Center and to the Scientific Research Institute of Information of the Belorussian SSR State Plan. One of the most important functions of every society deals with public health education, particularly in the field of preventive medicine. Another important aspect of their work is propaganda on behalf of the progressive movement "Physicians Against Nuclear War". It goes without saying that all societies are actively engaged in encouraging postgraduate education and in promoting the proper ideological convictions.

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ADMINISTRATIVE EXPERIENCE WITH DISPENSARIZATION

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 8, Aug 85
(manuscript received 19 Feb 85) pp 5-7

[Article by D.P. Kalkun, candidate of medical sciences and V.B. Krasovskaya, 2nd Chair of Internal Diseases, Grodno Medical Institute; 2nd Grodno Municipal Polyclinic]

[Abstract] Mass screening (dispensarization) in Grodno at the 2nd Municipal Polyclinic was carried out in three stages, beginning with a preparatory period (October and December, 1983), followed by data selection and collation (commencing January 1, 1984), and ending with medical screening. The preliminary stage dealt with health education for the general public and special training sessions for the involved medical personnel, dividing the area to be served into districts of 1700-1800 residents, and preparation of the health stations. The second stage was concerned with data breakdown and analysis as to age, sex, occupation, address confirmation, appointment dates for the examination, etc. The final stage was represented by the screening process itself, encompassing both clinical examinations and laboratory studies. This approach led to coverage of 40,673 (89.6%) of the targeted population of 45,400. In terms of clinical status, the following 6 categories were defined: Group I--healthy (47.5%), Group II--essentially healthy (27.6%), Group III--controlled chronic diseases (21.5%), Group IV--poorly controlled chronic diseases (1.5%), Group V--active chronic processes and handicapped (1.2%), and Group VI--acute diseases (angina pectoris, pneumonia, etc., 0.7%).

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ROLE OF TUBERCULOSIS SERVICE IN GENERAL MASS SCREENING PROGRAM

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 3, Mar 85
(manuscript received 28 Oct 85) pp 6-8

[Article by M.N. Lomako, professor, and O.M. Kalechits, candidate of medical sciences, Belorussian Scientific Research Institute of Tuberculosis]

[Abstract] The tuberculosis service in Belorussia currently encompasses 1.9% of the population in its mass screening and outpatient program, including patients, their families, and other at risk individuals. Beginning with 1985, in certain rayons in Belorussia the tuberculosis

services also assumed responsibility for other pulmonary diseases will fall under the care of the tuberculosis service which, in effect, will increase to 6.6% the total of the Belorussian population that will be covered by the tuberculosis service in the period 1986-1990. Statistical data have shown that patients with any form of pulmonary disease fare better at tuberculosis clinics because of the expertise of the physicians and the available resources. A further improvement in the health of the population can be expected in the future as a result of closer cooperation between the district physicians and pulmonologists within the framework of the mass screening program. References 8 (Russian).

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UDC 614-2:362.11/.6

INCIDENCE OF RETIREE REQUESTS FOR EMERGENCY MEDICAL ASSISTANCE

Kiev VRACHEBNOYE DELO in Russian No 6, Jun 85 (manuscript received 6 Feb 85) pp 112-114

[Article by L.N. Kalagireva and V.A. Bolyarskaya, Chair of Social Hygiene and Organization of Public Health, Ternopol Medical Institute]

[Abstract] An analysis was conducted on the incidence of calls for emergency medical assistance made by male and female retirees in Ternopol in the years 1979-1981, starting with the age 55+ years for women and 60+ for men. The highest incidence of calls for both sexes occurred in the 70+ age group. Of all the calls for medical assistance, the retirees accounted for 17.5% of the calls in 1979, 18.0% in 1980, and 18.9% in 1981. This is significantly lower than in the rest of the Ukraine and other regions of the USSR, but consonant with the fact that in Ternopol the aged population is 2.2-fold lower than the average percentage of aged in the rest of the Ukraine. The peak incidence of calls for medical assistance from the aged was received in March of every year. The highest incidence for calls was due to cardiovascular problems, followed by neurologic disorders, and then by digestive diseases. These findings suggested that more frequent home visits by the district physicians would reduce the calls made for emergency medical assistance by the aged, particularly in the winter months.

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AIR POLLUTION AND PROGNOSIS OF CHILD MORBIDITY

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL Vol 66, No 5, Sep-Oct 85
(manuscript received 4 Dec 84) pp 386-388

[Article by F.F. Dautov, Department of Hygiene (head-professor F.F. Dautov), Kazan Institute for Advanced Training of Physicians imeni V.I. Lenin]

[Abstract] A study of the nature of the dependence and prediction of morbidity among children as a function of change of pollution level in a populated area is described and discussed. Pairs (same age, economic status, sex and nationality) of children living in the region under study for at least 3 years were subjects. Air quality was studied for the entire life of the children, including the intra-uterine period. The study included 9160 analyses of air quality and statistical processing of 87,400 analyses by hydrometeorological and sanitation and hygiene services and industrial sanitation services. These data were used to develop formulas of the pollution index which made it possible to predict the morbidity level of the respiratory organs among these children. Use of the formula (presented in text with discussion and examples of use) made it possible to determine the relationship between air quality and morbidity in the children studied and presented guidelines for development of sanitation measures. Figures 2.

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SPECIALIZED MEDICAL AID TO INTOXICATED PERSONS WITH TRAUMA

Moscow ZDRAVOOKHRANENIYE ROSSIYSKOY FEDERATSII in Russian No 9, Sep 85
(manuscript received 28 Jan 85) pp 43-45

[Article by F.V. Bruder, G.D. Luchko and T.V. Mushtakova, Hospital No 17 "In Memory of 25th of October", Leningrad]

[Abstract] Aspects of the work of a specialized reception center attending injured intoxicated persons or persons in a state of acute alcoholic psychosis are described and discussed. Organization and operation of the center and record keeping procedures are described. Analysis of data from 1198 medical records, showing types and degrees of injuries and treatment used, is described, as are procedures followed to provide surgical and psychiatric care, when required. The need to separate intoxicated patients from other patients because of their possible violent behavior is discussed briefly.

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## POLYCLINIC DISPENSARIZATION OF YOUTHS

Moscow ZDRAVOOKHRANENIYE ROSSIYSKOY FEDERATSII in Russian No 9, Sep 85 (manuscript received 19 Apr 85) pp 36-37

[Article by V.I. Yakhtin, T.Yu. Shchurova and Yu.G. Yakovlev, Department of Public Hygiene and Public Health Organization (head-professor Yu.G. Yakolev), Astrakhan Medical Institute imeni A.V. Lunacharskiy]

[Abstract] Operation of an Astrakhan polyclinic serving youths and students is described and discussed. Patients include upper class students, working youths, secondary technical school students and occupational school students. The polyclinic opened in 1978. It employs medical brigades which go throughout the area to provide medical services in addition to the staff working at the polyclinic. The polyclinic morbidity figures for the last 10 years were presented and discussed briefly. These data and other medical studies being carried out at the polyclinic are being used to organize annual medical examinations for all area students in secondary nad technical schools and colleges.

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## CASE HISTORY OF PATIENTS COMPLAINTS

Moscow LITERATURNAYA GAZETA in Russian 29 Jan 86 p 12

[Article by Yuliy Krelin]

[Abstract] An informal description is presented of the process which occurs when a written complaint is made concerning a physician. The author describes a case in which a patient who was advised to wait unitl the acute period had passed before surgery wrote a letter of complaint to the Health Ministry, resulting in an investigation which started after the operation had been performed, at a time when the patient was then completely satisfied. The patient asked that the physician "pay no attention" to the letter which he wrote earlier in anger, but the author points out that the process had already been started and could not be simply halted. The author suggests that perhaps a lawyer or legal consultant should be included on hospital staffs to help with the increasing flow of complaints against physicians.

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CSO: 1840/1076

KASMON SYSTEM OF PREVENTIVE MEDICINE

Moscow MOSKOVSKAYA PRAVDA in Russian 5 Feb 86 p 3

[Article by A. Zhdanov, candidate of technical sciences, Senior Scientific Fellow]

[Abstract] The Latvian Ministry of Health and the Riga Medical Institute have jointly undertaken an experiment in preventive medicine involving an automated system, KASMON, for conducting physical examinations. This system is capable of classifying patients into 15 classes and profiles before they see a physician. The basis of the classification is a questionnaire filled out by the patient himself. KASMON can use these profiles to make physicians' work much more efficient, allowing them to supervise the care of 2.5 times as many patients as previously. Though KASMON cannot completely solve the problem of providing annual physical examinations for the entire population, it is a step in the right direction.

6508/9835
CSO: 1840/1080

N.N. BLOKHIN AND MEDICAL FADS

Leningrad LENINGRADSKAYA PRAVDA in Russian 13 Feb 86 p 3

[Article by S. Pestov]

[Abstract] This article reports on the interview with Nikolay Nikolayevich Blokhin, President of the USSR Academy of Medical Sciences. Blokhin discusses such sensations and fads as miraculous healing, treatment with "biofields," etc. While warning that our minds must remain open to the possibility of new and exciting treatments, Blokhin calls for continued and energetic work to combat medical farces.

6508/9835
CSO: 1840/1084

SHORTCOMINGS IN USSR MEDICAL CARE

Moscow SOVETSKAYA ROSSIYA in Russian 23 Mar 86 p 2

[Article by M. Kushtapin, interviewer]

[Abstract] S.N. Fedorov, corresponding member of the USSR Academy of Medical Sciences, in discussing ways to improve medical care, was very critical of delays in introducing new therapeutic techniques and discarding obsolete procedures. He blamed this state of affairs on the Minister of Health

as well as the natural conservatism of physicians. He recommended that indicators of quality of medical care replace the present orientation around number of buildings, polyclinics and beds. He discussed the lack of consideration of talent, diligence and quality of work of physicians in setting wage scales and recommended increased wages for improved medical care. He discussed the reasons for delay in introduction of new medical knowledge and technique and suggested remedies for the situation. He said new techniques should be put into practice within 3-5 years.

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HEALTH CENTER OF FARM

Frunze SOVETSKAYA KIRGIZIYA in Russian 12 Feb 86 p 2

[Article by I. Makarova]

[Abstract] Many farms and animal husbandry complexes now have health centers which provide the usual prophylactic procedures, analyses, medical treatment and physical therapy. This eliminates the need for workers to visit rayon or uchastok hospitals to obtain such care. Such a health center was opened last year at the dairy kolkhoz "Krasnyy Oktyabr" in Moscow Rayon. These centers are helpful to the state since any improvement in social and domestic conditions helps to improve economic conditions and reduces work time lost which, in turn, increases productivity.

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STATE OF ACETYLCHOLINE-CHOLINESTERASE SYSTEM IN PREGNANT WOMEN EMPLOYED AT OIL REFINERIES

Baku AZERBAYDZHANSKIY MEDITSINSKIY ZHURNAL in Russian No 10, Oct 85 pp 15-18

[Article by R.V. Yelisuyskaya, I.Ye. Loseva, A.M. Akhmedova and M.A. Khalilova, Azerbaijan Scientific Research Institute for Labor Hygiene and Occupational Diseases imeni M.M. Efendizade]

[Abstract] Effects of hydrocarbons on the human body are found in the involuntary nervous system and chemical nerve mediators. The role of acetylcholine in the nervous system in combination with cholinesterase in pregnant women is the subject of the present article. The effects of contact

with petroleum hydrocarbons as well as nervous and emotional stress factors were considered in the study. The 50 subjects were in the 10-32 week of pregnancy, and all had been employed for 5-9 years at the refinery. All were continuing their previous work except for heavy carrying tasks; they complained of exhaustion, irritability and pains in the lower abdomen. Blood tests showed that 60% of the women had elevated levels of acetylcholine (while only 20% of the control group of housewives had higher levels). Study results indicated that this factor was clearly related to exposure to hydrocarbons at the oil refinery, and that it was a cause of premature birth. It is recommended that women employees be found work away from the refinery during periods of pregnancy. References 11: 10 Russian, 1 Western.

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UDC 616.89-072.85

# USE OF "COLOR MOSAIC" IN COMPREHENSIVE STUDY OF PSYCHIATRIC PATIENTS

Baku AZERBAYDZHANSKIY MEDITSINSKIY ZHURNAL in Russian No 10, Oct 85 pp 19-22

[Article by N.V. Agazade and L.M. Kulgavin, Psychiatric Hospital No 1, AzSSR Ministry of Health]

[Abstract] Color perception has found a significant place in assessing psychiatric problems. The present article reports on a new "color mosaic" procedure to determine color perceptions that are directly tied to practical activities of humans. The method uses 800 flat colored cards of eight colors, arranged in a test field with a specific pattern of color variations. A subject places any 100 cards on the test field to fill it in the first stage; in the second stage, the subject interprets his selection for the testor. The testor attempts to interpret color choice. Various patterns have been noted. For example, victims of schizophrenia choose more secondary than primary colors by 10%. Varying patterns were noted for schizophrenics, who made achromatic patterns, and those in remission, whose patterns were more regular. Those suffering depression tended to have a balance of bright and muted colors, although the former were numerically more common in the set of colors offered. Missing colors and other pattern peculiarities were noted, although results of the study are restricted by differing results from varying groups of examinees. The simplicity of the test and the broad information provided indicate its value for psychiatric examinations. References 10: 8 Russian, 2 Western.

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UDC 615.89-008.441.13

DYNAMICS OF PERSONALITY TRAITS OF ALCOHOLICS UNDER CONDITIONS EXISTING IN LABOR THERAPY PROPHYLACTIC CENTER

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 1, Jan 86 pp 16-17

[Article by Yu.A. Gusev and A.G. Rabilko, Department of Psychiatry (head of department-professor A.F. Stepanov), Semipalatinsk Medical Institute, Labor Therapy Prophylactic Center (chief physician, S.A. Kaparov)]

[Abstract] Re-examination of 77 alcoholics undergoing labor-therapy at a health center revealed significant new trends in comparison with those reported in Zdravookhraneniye Kazakhstana No 3, 1983. Most of the patients showed increased concern about their situation and future. They were trying to modify their behavior and the amount of anti-social behavior decreased. These trends were more pronounced in patients under the age of 30 years, indicating a definite reversibility or at least a diminution of the pathology processes ensuing in them. Unchanged personality profiles upon re-examination of patients who had interrupted their treatment indicated an irreversibility of pathological traits and indicated a poor prognosis for their recovery or improvement.

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SLEEP DEPRIVATION IN TREATMENT OF DEPRESSION

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL Vol 66, No 2, Mar-Apr 85 (manuscript received 5 Jun 84) pp 118-121

[Article by A.M. Veyn and R.G. Ayrapetov, Department of Autonomic Nervous System Pathology, 1st Moscow Medical Institute imeni I.M. Sechenov]

[Abstract] Therapeutic trials were conducted with sleep deprivation in the treatment of 79 male patients, 20-40 years of age, based on previous reports that sleep deprivation alleviated manifestations of depression. No other form of therapy was employed for 8-10 days prior to sleep deprivation or during the trial. The therapy had to be discontinued in 5 patients because of further mental deterioration. However, positive results were obtained in 73.7% of the patients with endogenous depression and in 50.0% with psychogenic depression. The successful regimen consisted of 36-38 h periods of wakefulness, for a total of 5 sessions scheduled to give a sleepless night every third day. The positive results were reinforced with an additional 2-3 sessions after a 5-day break. The simplicity, safety, and early effectiveness of this approach make it one of the more useful therapies in the management of depression. References 18: 11 Russian, 1 Polish, 6 Western.

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UDC 616.89-053.2-081.214

ADMINISTRATIVE BASIS FOR AMBULATORY PSYCHIATRIC ASSISTANCE TO CHILDREN AND ADOLESCENTS AT MUNICIPAL PSYCHONEUROLOGIC DISPENSARY

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL Vol 66, No 2, Mar-Apr 85 (manuscript received 15 Jul 82) pp 145-146

[Article by N.A. Blyukherova, N.N. Alatyreva and V.I. Karpukhina, Chair of Psychiatry, Kazan State Medical Institute imeni S.V. Kurashov; Municipal Psychoneurologic Dispensary, Kazan]

[Abstract] Measures have been taken in Kazan to avoid, insofar as possible, hospitalization of children and adolescents requiring psychiatric care. The purpose is to manage such patients on an outpatient basis, a step that has required extensive public education and special training for the involved medical personnel. The school and district physicians, with the assistance of specialists, identify the target population and commence intensive therapy on an extramural basis. In case of noncomplicance, the physicians make home visits to bring medication and conduct other forms of therapy. Hospitalization is limited to cases showing dangerous antisocial behavior which precludes supervision on an ambulatory basis. The effectiveness of this approach can be measured by the most recent statistics. In 1974-1977 only 40% of the children and adolescents with mental and neuropsychiatric problems were managed as outpatients, whereas in the 1978-1981 period the figure grew to 60%.

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CLINICAL MANIFESTATIONS OF EARLY ALCOHOLISM IN MILDLY MENTALLY RETARDED ADOLESCENTS

Moscow ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S.S. KORSAKOVA in Russian Vol 86, No 3, Mar 86 (manuscript received 26 Jun 84) pp 394-398

[Article by L.S. Rychkova, Chair of Pediatric and Adolescent Psychiatry, Ural Institute of Postgraduate Medicine, Chelyabinsk]

[Abstract] An examination was conducted on the manifestations of early alcoholism in adolescents with mild mental deficiency to define the use of such criteria in the diagnosis of alcohol problems in that group of patients. The study encompassed 122 8-to-18 year olds, with 84.4% (103) in the 14-18-year bracket. This category was found to be at special risk of early alcoholism, with the earlier age of onset directly correlated with the degree of mental deficiency. In almost half of the subjects (59 or 48.4%) early alcoholism was characterized by dysphoric type of intoxication, in 22.1% (27) by euphoria, and in 20.5% (25) of the cases by stupefaction.

Finally, in 9.0% (11) of the individuals, intoxication was accompanied by depression. In addition to the basic symptomatology of alcoholic intoxication and alcoholism, further intellectual deterioration was a characteristic feature of the course of the illness, with pronounced memory disturbances, loss of attentiveness, and emotional lability. In the mentally-deficient adolescents, the entire course of physical and mental deterioration proceeded at a more rapid pace than in other categories of patients. References 13 (Russian).

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UDC 616.895.4-085-036.8-07:616.831-073.97

PATTERN CHANGES IN EVOKED POTENTIALS IN RESPONSE TO TREATMENT OF ENDOGENOUS DEPRESSION

Moscow ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S.S. KORSAKOVA in Russian Vol 86, No 3, Mar 86 (manuscript received 15 Jan 85) pp 431-435

[Article by V.V. Loginov, A.Yu. Magalif, I.P. Leshchinskaya, V.I. Trubnikov and A.V. Nemtsov, Section of Psychophysiological Studies, Scientific Research Institute for Biological Testing of Chemical Agents; Moscow Scientific Research Institute of Psychiatry, RSFSR Ministry of Health]

[Abstract] An analysis was conducted on the differences in the acoustic evoked potentials between a group of clinically healthy individuals and a group of 48 male and female paitents with endogenous depression, and the effects of treatment with tricyclic antidepressants on the patterns in the latter group. In the healthy (control) group, the evoked potentials followed a well-defined pattern of two positive waves followed by a negative wave. In the patient groups, however, the amplitude of the evoked waves was depressed and the patterns were generally indistinct, but latent times--such as could be distinguished--did not differ statistically from those observed for the control group. Use of tricyclic antidepressants (amitriptyline, melipramine) in standard dosages led to some degree of amplitude recovery which, nevertheless, remained below the control level and to normalization of the wave pattern. On a preliminary basis, it appears that the amplitude parameter may reflect the severity of endogenous depression, and the waveform, the potential degree of reversibility with tricyclic antidepressants. Figures 4; references 11: 3 Russian, 8 Western.

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UDC: 615.838-053.2:061.3(47+57)"1984"

# ALL-UNION SCIENTIFIC PRACTICAL CONFERENCE OF PHYSICIANS: SANITORIUM-HEALTH RESORT TREATMENT OF CHILDREN AND ADOLESCENTS, ANAPA, 15-17 NOV 1984

Moscow VOPROSY KURORTOLOGII, FIZIOTERAPII I LECHEBNOY FIZICHESKOY KULTURY in Russian No 4, Jul-Aug 85 pp 68-70

[Article by Prof. T.V. Karachevtseva, Moscow]

[Abstract] This conference was organized by the Central Council for the Administration of Health Resorts of Work Unions in cooperation with the USSR Ministry of Health, Central Scientific Research Institute of Health Resort Science and Physical Therapy of the USSR Ministry of Health, Institute of Pediatrics of the USSR Academy of Medical Sciences, Scientific Research Institute of Pediatrics and Pediatric Surgery of the RSFSR Ministry of Health, Scientific Research Institute of Hygiene of Children and Adolescents of the USSR Ministry of Health, and the Central Scientific Research Institute of Dermatology and Venerology of the USSR Ministry of Health. Participants heard 32 reports and viewed two films on contemporary aspects of the Organization of Sanitorium and Health Resort Treatment of Children and Adolescents, prospects for its further improvement, problems of adaption of children at health resorts in various climatic and geographic zones, treatment of children with diseases of the cardiovascular system, digestive organs, respiration, kidneys, skin and skeletomotor apparatus. Discussion topics included current problems of pediatrics, the study of the condition of children and adolescents, pressing problems of scientific research on sanitorium-health resort treatment of adolescents, administration of health resorts, problems of adaptation and regimes of bath therapy factors, medical-social adaptation of children to chronic bronchial-pulmonary disease and problems of health resort treatment of children with arterial hypertension, rheumatism and nonrheumatic cardiopathies, and the treatment of chronic hepatitis in children.

6508/9835
CSO: 1840/2022

MISCELLANEOUS

## VIRUSES AND HEREDITY

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 Mar 86 p 4

[Article by R. Akhmetov, TASS correspondent]

[Abstract] Recently, three Soviet scientists made a seminal discovery in viral oncogenesis that has since been confirmed by other scientists in the USSR and abroad. N.I. Shapiro, doctor of biological sciences, along with his colleagues M.I. Marshak and N.B. Varshaver of the Institute of Molecular Genetics, found that oncogenic and non-oncogenic viruses are capable of inducing mutations in mammalian cells. This finding closes the gap between the viruses and other agents that can cause the formation of cancer, since mutagenesis has long been confirmed as a mechanism of action of the other agents but not of viruses. In view of this, it is now apparent that great care must be exercised in handling even the seemingly most innocuous viral diseases, and that many live viral vaccines will have to undergo further testing for safety from neoplastic complications.

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## BIOGEOGRAPHIC AND BIOTOPIC ANALYSIS OF FOULING POLYCHAETOUS WORMS IN NORTHWESTERN AREA OF SEA OF JAPAN

Vladivostok BIOLOGIYA MORYA in Russian No 1, Jan 85
(manuscript received 30 Nov 83) pp 9-15

[Article by E.V. Bagaveyeva, Laboratory of Shelf Communities, Institute of Marine Biology, Far Eastern Scientific Center, USSR Academy of Sciences, Vladivostok]

[Abstract] An analysis was conducted on fouling polychaetous worms on various objects in the northwestern area of the Sea of Japan. The tabulated data yielded the following frequency figures for 60 species: 15% boreal arctic, 15% boreal, 40% subtropical and tropical boreal, and

30% 'cosmopolitan' worms. The highest incidence of fouling by the polychaetous worms was on stationary objects, and decreased in relation to the mobility of the object (e.g., ship). Figures 3; references 15 (Russian).

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CSO: 1840/1197 - END -